Transportation Industry Environmental Scan

A Report to the US Department of Labor
Transportation Workforce Research Project

________________________________________

Transportation Learning Center

April 15, 2004
## Table of Contents

Executive Summary ........................................................................................................... i

Part 1. Transportation Industry Overview

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Definition and Overview</td>
<td>1</td>
</tr>
<tr>
<td>Major Sector Definition</td>
<td>2</td>
</tr>
<tr>
<td>Major Sector Employment and Output</td>
<td>6</td>
</tr>
<tr>
<td>Key Industry Organizations - Summary</td>
<td>8</td>
</tr>
<tr>
<td>Key Unions - Summary</td>
<td>9</td>
</tr>
<tr>
<td>Joint Workforce Development Initiatives – Summary</td>
<td>10</td>
</tr>
</tbody>
</table>

Part 2. Transportation Industry Top Employers ................................................. 11

Part 3. Overall Transportation Industry Occupations ........................................ 15

Part 4. Transit and Ground Passenger Transportation Occupations ..................... 22

Part 5. Warehousing and Storage Occupations .................................................... 29

Part 6. Truck Transportation Occupations ............................................................ 36

Part 7. Scenic and Sightseeing Transportation Occupations .............................. 43

Part 8. Transportation Support Activities Occupations ..................................... 50

Part 9. Air Transportation Occupations ............................................................... 57

Part 10. Water Transportation Occupations ......................................................... 64

Part 11. Rail Transportation Occupations ............................................................ 71

Appendix

A. Profiles: Key Transportation Industry Association, Union, and Joint Workforce Development Initiative – Preliminary List
List of Tables

1-1. Employment and Output by Major Industry Divisions, 2002 and Projected 2012 ....................1

2-1. Top Ten Transit Agencies – 2001 Revenues and Employment ........................................11
2-3. Top Ten Port Authorities – 2002 Revenues and Employment ...........................................12
2-4. Top Ten Logistics Companies – 2002 Revenues and Employment ...................................13
2-6. Top Ten Water Transportation Companies – 2002 Revenues and Employment ...............14
2-7. Top Eight Railroad Freight and Passenger Companies – 2002 Revenues and Employment ...14

Overall Transportation Industry Occupations:
3-1. Occupations with the Most Jobs in 2002 .................................................................16
3-2. Occupations with the Most Jobs in 2012 .................................................................16
3-3. Occupations with the Highest Percentage Increase between 2002 and 2012 ..............17
3-4. Occupations with the Largest Numerical Increase between 2002 and 2012 .....................17
3-5. Employment, Wages and Education/Training Requirements – Total Transportation Industry Occupations with the Most Jobs in 2002 and 2012, and with the Highest Percentage and Numerical Increase between 2002 and 2012 ..........18

Transit and Ground Passenger Transportation Occupations:
4-1. Occupations with the Most Jobs in 2002 .................................................................23
4-2. Occupations with the Most Jobs in 2012 .................................................................23
4-3. Occupations with the Highest Percentage Increase between 2002 and 2012 ..............24
4-4. Occupations with the Largest Numerical Increase between 2002 and 2012 .....................24
4-5. Employment, Wages and Education/Training Requirements - Occupations with the Most Jobs in 2002 and 2012, and with the Highest Percentage and Numerical Increase between 2002 and 2012 ......25
4-6. Local Government Transit-related Occupational Employment Trends – Selected Occupations ...28

Warehousing and Storage Occupations: Table 5-1 – 5-5 .....................................................30
Truck Transportation Occupations: Table 6-1 – 6-5 ............................................................37
Scenic and Sightseeing Transportation Occupations: Table 7-1 – 7-5 ..................................44
Transportation Support Activities Occupations: Table 8-1 – 8-5 ........................................51
Air Transportation Occupations: Table 9-1 – 9-5 .................................................................58
Water Transportation Occupations: Table 10-1 – 10-5 ..........................................................65
Rail Transportation Occupations: Table 11-1 – 11-5 .............................................................72

List of Charts

1-1. Detailed Transportation Industry Structure .................................................................5
1-2. Employment in Transportation Industry Sectors, Percentage Change 2002-2012 ............7
Executive Summary

The transportation industry has been identified as a high-growth industry, with Bureau of Labor Statistics (BLS) projecting nearly 22 percent employment growth between 2002 and 2012. At the same time, this industry is experiencing dramatic changes in new technologies, workforce demographics and skill requirements.

This draft report aims to provide a comprehensive scan of the transportation industry. In addition to presenting the overall industry structure, major sector definitions, key associations, unions and joint workforce development initiatives, it focuses on statistics related to the industry, its employers and its workforce. The report develops trends in output and employment for the transportation industry as a whole, by major industry sectors, and for the largest employers in each sector. It also explores developments in industry occupational employment, wages and education/training requirements.

Major findings from the environmental scan are summarized as follows:

1. Transportation Industry Overview

   - The transportation industry is the second fastest growing industry among all major industries in the United States, with BLS projecting 22 percent growth in employment or 914,000 job increase between 2002 and 2012. Output is projected to increase by 42 percent or $244 billion, which is significantly faster than the economy-wide output growth and the 32 percent growth rate this sector experienced during the last decade.
   - Leading transportation industry associations include:
     - American Public Transportation Association
     - American Bus Association
     - American Trucking Association
     - Motor Freight Carriers Association
     - American Society of Transportation and Logistics
     - Air Transport Association
     - American Association of Port Authorities
     - Association of American Railroads

2. Major Transportation Sectors

   - Within the transportation and warehousing industry group, truck transportation (excluding couriers and messengers) employs the most workers. With 1,328,000 employees in 2003, it accounts for over one third of the total employment in transportation. Air transportation is the second biggest sector, employing 527,000 workers. Warehousing and storage follows closely, with only 5,000 less employees than airlines. Industries providing support activities to air, water, rail, and freight transportation rank the fourth in terms of 2003 actual employment (516,000 workers). With 380,000 employees, transit and ground passenger transportation comes in as the fifth largest industry sector in transportation.
Transit and ground passenger transportation has the highest percentage increase in employment over the 2002-12 period (31 percent), with 116,000 more jobs being created. Despite this rapid employment growth, the sector’s output growth rate of 15 percent is the lowest in the transportation industry.

Over half of the transportation industry’s employment growth and over 40 percent of its output increases occur in truck transportation, couriers, and messengers. This sector’s above-average projected output growth rate of 45 percent results in $109 billion worth of additional output being generated by 2012, and is one of the largest sources of output growth projected for the economy. With accompanying employment gains of 507,000, rising to over 2.4 million in 2012 from almost 1.9 million in 2002, this industry is also expected to be one of the economy’s largest sources of employment growth.

Employment in the scenic and sightseeing transportation and support activities for transportation sector is projected to grow by 18 percent over 2002-12, providing 100,000 new jobs, while experiencing 30 percent output growth, adding $13 billion in output.

Prior to September 11, 2001, BLS had projected that the air transportation sector would see considerable gains in employment and output, due to increases in population, disposable income, and domestic and foreign business activity. Projections since then have shown more moderate growth in employment, though output growth is projected to remain strong. Employment is expected to increase by 12 percent over 2002-12, resulting in 67,000 new jobs. The projected output growth rate of 61 percent surpasses the 42 percent rate experienced during the last decade and results in an $87 billion increase.

Water transportation is expected to experience a 4 percent decline in employment, losing 2,000 jobs. After a decade of zero growth, the sector is projected to see output growth of 33 percent, producing an additional $7 billion worth of output.

Employment in railroad transportation is projected to decrease at the rate of 10 percent over 2002-12, losing another 21,000 jobs after losing 30,000 in the previous decade. Output is expected to increase by 32 percent, adding $14 billion worth of output, surpassing the 19 percent growth of the preceding ten years.

3. Transportation Occupational Employment

Occupations involving heavy or light truck driving employ the most workers in both 2002 and 2012, accounting for over a quarter of the total employment in the transportation industry.

Three out of the top ten transportation industry occupations with the highest percentage increase are IT related and typically require a minimum of associate or bachelor level education. However, the numeric increase in jobs in these ten
occupations accounts for less than 1 percent of the overall transportation industry job gain.

- Four out of the top ten transportation industry occupations with the highest numeric increase during the 2002-12 period involve truck or bus driving, while another three are related to moving materials. With the exception of general and operations managers and flight attendants, all of the top ten occupations require only short- to moderate-term on-the-job (OJT) training. These occupations account for almost 60 percent of employment increases in the transportation industry.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death\(^1\), truck drivers, laborers and movers, ticket agents, and school bus drivers top the list of occupational employment between 2002 and 2012. This reflects the need of moderate-term OJT training for a minimum of 282,000 heavy and tractor-trailer truck drivers, and short-term OJT training for a minimum of 149,000 laborers and movers over the ten year period.

- Airline pilots, business operations specialists, sales workers, bus mechanics and diesel engine specialists, and supervisors of helpers have the highest rate of increased training needs, while comparing the net new hires (or minimum training needs) between 2002 and 2012 with the actual 2002 employment. Most of these occupations require higher levels of education or training than the rest of the list.

4. Major Sector Occupational Employment

A. Transit and Ground Passenger Transportation Occupations

- Workers in transit and ground passenger transportation held about 372,000 jobs in 2002. Employment in all occupations in this sector is projected to grow at a rate of 31 percent between 2002 and 2012, adding 116,200 new jobs.

- Bus drivers have the largest employment in both 2002 and projected 2012.

- The fastest growing occupations are varied. They include several business and professional occupations, truck drivers, emergency medical technicians (EMTs), rail car repairers, painters, rail operators, and waiters. However, these occupations are only a small part of this sector and thus account for less than 5% of job growth.

- Occupations that will have the most net job growth in transit and ground transportation include bus, taxi, truck, and ambulance drivers, bus and truck mechanics, dispatchers, ticket agents, EMTs, and transportation attendants.

- A large portion of public transportation services is categorized by BLS under local government passenger transit, separate from transit and ground passenger transportation. Local government transit employs a total of 231,000 workers in 2002.

\(^1\) This measure is referred to as Net New Hires in Table 3-5.
With a growth rate of 12.55 percent, employment is projected to reach 260,000 by 2012.

**B. Warehousing and Storage Occupations**

- The warehousing and storage industry provided 513,600 wage and salary jobs in 2002. Employment in all occupations in this sector is projected to grow at a rate of 29 percent between 2002 and 2012, adding 146,700 jobs.

- Laborers and freight, stock, and material movers had the largest employment in 2002, and are expected to have the largest employment in 2012.

- Four of the ten fastest growing occupations are computer-related. Other fast growing occupations include control and valve installers/repairers, chemical technicians, heating, air conditioning, and refrigeration mechanics/installers, electricians, public relations specialists, and business operations specialists. However, these occupations account for only 2 percent of new jobs in the sector.

- The top occupation for new jobs in the sector is industrial truck and tractor operator, which is projected to see job growth of 24.4 percent, or 26,070. Laborers and freight, stock, and material movers will also see significant job growth with a projected growth rate of 14.7 percent, or 14,332 jobs.

**C. Truck Transportation Occupations**

- Truck transportation employed around 1.34 million workers in 2002. With a ten-year growth rate of 21 percent, this industry is expected to add 274,800 jobs by 2012.

- Heavy and tractor-trailer truck drivers had the largest employment in 2002, and are expected to have the largest employment in 2012.

- Four of the ten fastest growing occupations are computer-related. Other fast growing occupations include reservation and ticket agents, hazardous materials workers, public relations specialists, business operations specialists, and sales managers.

- Over sixty percent of new jobs in truck transportation are expected to be for heavy and tractor-trailer truck drivers.

**D. Scenic and Sightseeing Transportation Occupations**

- The scenic and sightseeing transportation industry employed a total of 25,900 wage and salary workers in 2002. Employment in all occupations in this industry is projected to grow at a rate of 15 percent between 2002 and 2012, adding 3,900 jobs.

- Transit and intercity bus drivers have the largest employment in both 2002 and projected 2012.
• The fastest-growing occupation is aircraft mechanic with a job growth rate of 41 percent. Other fast-growing occupations include reservation/ticket agent, heavy truck driver, and mechanic supervisor.

• The occupation providing the most new jobs is transit and intercity bus driver, accounting for 10 percent of new jobs.

**E. Transportation Support Activities Occupation**

• In 2002, industries providing support activities for air, water, rail and freight transportation employed 526,700 workers. Employment in all occupations in this sector is projected to grow at a rate of 18 percent between 2002 and 2012, adding 95,800 jobs.

• Laborers and freight, stock, and material movers have the largest employment in both 2002 and projected 2012.

• Four of the ten fastest-growing occupations in transportation support activities are computer-related. Other fast-growing occupations include business operations specialists, control and valve installers/repairers, rail car repairers, sales supervisors and managers, and explosives workers.

• Over 20 percent of new jobs in this sector will be for truck drivers and operators.

**F. Air Transportation Occupations**

• Workers in the air transportation industry held 559,300 jobs in 2002. Employment in this industry is projected to grow at a rate of 12 percent between 2002 and 2012, adding 66,900 new jobs.

• Reservation and transportation ticket agents and travel clerks had the largest employment in both 2002 and 2012.

• The fastest growing occupations are diverse, and include recreation attendants, coaches, cartographers, cooks, and network systems analysts.

• By far, the occupations with the greatest growth are flight attendants, providing 23% of new jobs over the projected period, and airline pilots, providing 18% of new jobs.

**G. Water Transportation Occupations**

• The water transportation industry provided a total of 51,600 jobs in 2002. Employment in this industry is projected to contract at a rate of 2.7 percent, suffering a loss of 1,400 jobs.

• Sailors and marine oilers have the largest employment in both 2002 and projected 2012.
• Four of the ten fastest-growing occupations are related to computer, network, and information systems. Other fast-growing areas of employment include reservations and ticketing, public relations, finance, sales, and truck driving.

• Less than half of occupations in water transportation are projected to experience job growth over 2002-12. Of these, only jobs for reservation and transportation ticket agents and travel clerks are expected to increase by more than 100.

**H. Rail Transportation Occupations**

• Rail transportation workers held around 218,000 jobs in 2002. Employment in all rail transportation occupations is projected to decrease by almost ten percent between 2002 and 2012, losing 21,200 jobs.

• Railroad conductors and yardmasters had the largest employment in 2002 and are projected to have the largest employment in 2012.

• Only fourteen occupations in rail transportation are expected to see job growth over 2002-12. The only occupation projected to provide more than 100 new jobs is subway and streetcar operator. It is also the fastest growing occupation in this industry.

Further development of this report will identify other key workforce trends in transportation, including retirement and occupations experiencing skill shortages. More focus will also be drawn to address current and potential training opportunities that exist in the Transportation industry.
Part 1. Transportation Industry Overview

Industry Definition and Overview

The 2002 North American Industry Classification (NAICS) Manual identifies the transportation and warehousing industry as including establishments that provide transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation.

According to the Bureau of Labor Statistics, employment in the transportation industry is projected to increase by 21.7 percent, from 4.2 million jobs in 2002 to 5.1 million jobs in 2012. This growth rate is faster than those of the overall economy and the service-providing industry division. Output is projected to increase by 42.4 percent or $244 billion, which is faster than the economy-wide output growth for this time period, as well as the 32.1 percent growth rate this sector experienced during the last decade.

Table 1-1. Employment and Output by Major Industry Divisions, 2002 and Projected 2012

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<th>Industry Division</th>
<th>Employment</th>
<th>Output</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Total</td>
<td>144,014</td>
<td>165,319</td>
</tr>
<tr>
<td>Non-farm wage and salary</td>
<td>131,063</td>
<td>152,690</td>
</tr>
<tr>
<td>Goods-producing</td>
<td>22,551</td>
<td>23,345</td>
</tr>
<tr>
<td>Mining</td>
<td>512</td>
<td>451</td>
</tr>
<tr>
<td>Construction</td>
<td>6,732</td>
<td>7,745</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>15,307</td>
<td>15,149</td>
</tr>
<tr>
<td>Service-providing</td>
<td>108,513</td>
<td>129,344</td>
</tr>
<tr>
<td>Utilities</td>
<td>600</td>
<td>565</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>5,641</td>
<td>6,279</td>
</tr>
<tr>
<td>Retail trade</td>
<td>15,047</td>
<td>17,129</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>4,205</td>
<td>5,120</td>
</tr>
<tr>
<td>Information</td>
<td>3,420</td>
<td>4,052</td>
</tr>
<tr>
<td>Financial activities</td>
<td>7,843</td>
<td>8,806</td>
</tr>
<tr>
<td>Other services</td>
<td>50,268</td>
<td>63,374</td>
</tr>
<tr>
<td>Government</td>
<td>21,489</td>
<td>24,019</td>
</tr>
<tr>
<td>Local government passenger transit²</td>
<td>231</td>
<td>260</td>
</tr>
</tbody>
</table>

³ According to BLS, a large portion of public transportation services is categorized under Local Government Passenger Transit, separate from Transit and Ground Passenger Transportation.

4/15/2004
Major Sector Definitions

This industry consists of eight major sectors (see following page, Detailed Transportation Industry Structure Chart). Arranged in the order of the percentage increase in employment from 2002 to 2012, these major sectors are:

- Transit and Ground Passenger Transportation *(NAICS 485)*
- Warehousing and Storage *(NAICS 493)*
- Truck Transportation and Couriers and Messengers *(NAICS 484 and 492)*
- Scenic and Sightseeing Transportation and Support Activities for Transportation *(NAICS 487 and 488)*
- Air Transportation *(NAICS 481)*
- Pipeline Transportation *(NAICS 486)*
- Water Transportation *(NAICS 483)*
- Rail Transportation *(NAICS 482)*

Also providing transportation services is the Local Government Passenger Transit sector. BLS does not include this sector in the Transportation and Warehousing industry, instead classifying it as government.

Transit and Ground Passenger Transportation

This sector includes a variety of passenger transportation activities. It is comprised of the following industries: urban transit systems, including subway, commuter rail, and bus services; interurban and rural bus transportation; taxi and limousine service; school and employee bus transportation; the charter bus industry; and other transit and ground passenger transportation, including special needs transportation.

Major employers in urban transit include New York City MTA, Chicago RTA and New Jersey Transit Corp. (See Table 2-1 for a complete list of the top ten U.S. urban transit agencies.) Greyhound and Coach USA are the two largest companies operating intercity bus lines.

Warehousing and Storage

Industries in the Warehousing and Storage sector are primarily engaged in operating warehousing and storage facilities for general merchandise, refrigerated goods, and other warehouse products. Warehousing and storage services are often provided by companies that are primarily engaged in truck transportation.

Leading trucking firms that also provide warehousing and distribution services include CNF Inc., Penske, and Exel (See Table 2-2 for details).

Truck Transportation and Couriers and Messengers

Industries in the Truck Transportation sector provide over-the-road transportation of cargo using motor vehicles, such as trucks and tractor trailers. The sector has two main divisions:
general freight trucking, which involves handling a wide variety of general commodities, and specialized freight trucking, which is the transportation of cargo that, because of size, weight, shape, or other inherent characteristics require specialized equipment for transportation.

Top trucking companies include UPS, FedEx, and Ryder. (See Table 2-2 for a list of the top ten trucking companies.)

Industries in the Couriers and Messengers sector provide intercity and/or local delivery of parcels that may be handled by one person without using special equipment. Couriers are part of an intercity network which provides delivery services between metropolitan areas or urban centers, while messengers provide only local delivery services.

**Scenic and Sightseeing Transportation and Support Activities for Transportation**

Industries in the Scenic and Sightseeing Transportation sector utilize transportation equipment to provide recreation and entertainment. Activities carried out in this sector do not emphasize efficient transportation, often using obsolete vehicles, such as steam trains, to provide some extra ambience. They are local in nature, usually involving a same-day return to the point of departure.

Industries in the Support Activities for Transportation sector provide support services to transportation carrier establishments and the general public. They include support for air transportation, including airport operations and air traffic control; support for rail transportation; support for water transportation, including port and harbor operations, marine cargo handling, and navigational services to shipping; support for road transportation, including motor vehicle towing; freight transportation arrangement; and other support activities for transportation, including packing and crating.

Top port authorities providing support services to water transportation include Port of Seattle, Port of Los Angeles, and Port of Long Beach. (See Table 2-3 for a list of the top ten U.S. port authorities.) Top companies in freight transportation arrangement include C. H. Robinson Worldwide, Expeditors International of Washington and SIRVA, Inc. (See Table 2-4 for a list of the top ten logistics companies.)

**Air Transportation**

Industries in the Air Transportation sector provide air transportation of passengers and/or cargo using aircraft, such as airplanes and helicopters.

American, United and Delta Airlines are among the top ten largest airline companies in the U.S. (See Table 2-5 for a complete list of largest airline companies.)

**Pipeline Transportation**

Industries in the Pipeline Transportation sector use transmission pipelines to transport products, such as crude oil, natural gas, refined petroleum products, and slurry. The Pipeline Transportation of Natural Gas industry includes the storage of natural gas because the storage
is usually done by the pipeline establishment and because a pipeline is inherently a network in which all the nodes are interdependent.

**Water Transportation**

Industries in the Water Transportation sector provide water transportation of passengers and cargo using water craft, such as ships, barges, and boats. The sector is composed of two industry groups: one for deep sea, coastal, and Great Lakes; and one for inland water transportation.

Major firms engaged in water transportation are Stolt-Nielsen, CP Ships Ltd and Sea Containers Ltd. (See Table 2-6 for top ten water transportation employers.)

**Rail Transportation**

Industries in the Rail Transportation sector provide rail transportation of passengers and/or cargo using railroad rolling stock. The railroads in this sector primarily either operate on networks, with physical facilities, labor force, and equipment spread over an extensive geographic area, or operate over a short distance on a local rail line.

The largest railroad freight companies include Union Pacific Railroad, Burlington Northern and Santa Fe Railway, and CSX Transportation. In railroad passenger transportation, Amtrak is the dominant employer. (See Table 2-7 for top ten railroad freight and passenger companies.)

This report will concentrate on transportation industry sectors with large employment and output, namely:

- Transit and Ground Passenger Transportation (*NAICS 485*)
- Warehousing and Storage (*NAICS 493*)
- Truck Transportation and Couriers and Messengers (*NAICS 484 and 492*)
- Scenic and Sightseeing Transportation and Support Activities for Transportation (*NAICS 487 and 488*)
- Air Transportation (*NAICS 481*)
- Water Transportation (*NAICS 483*)
- Rail Transportation (*NAICS 482*)

The pipeline industry is excluded from this report due to the small size of its workforce (42,000 jobs in 2002) and its projected lack of employment change between 2002 and 2012.
**Major Sector Employment and Output**

As the following tables suggest, transit and ground passenger transportation has the transportation industry’s highest percentage increase in employment over the 2002-12 period (31.2 percent), with 116,000 more jobs being created. Despite this rapid employment growth, the sector’s output growth rate of 15.4 percent is the lowest in the transportation industry.

Over half of the transportation industry’s employment growth and over 40 percent of its output increases occur in truck transportation and couriers and messengers. This industry’s above-average projected output growth rate of 45.4 percent results in $109 billion worth of additional output being generated by 2012, and is one of the largest sources of output growth projected for the economy. With accompanying employment gains of 507,000, rising to more than 2.4 million in 2004 from almost 1.9 million in 2002, this industry is also expected to be one of the economy’s largest sources of employment growth.

Employment in the scenic and sightseeing transportation and support activities for transportation sector is projected to grow by 18.1 percent over 2002-12, providing 100,000 new jobs, while experiencing 29.6% output growth, adding $13 billion in output.

Prior to September 11, 2001, BLS had projected that the air transportation sector would see considerable gains in employment and output, due to increases in population, disposable income, and domestic and foreign business activity. Projections since then have shown more moderate growth in employment, though output growth is projected to remain strong. Employment is expected to increase by 12.0 percent over the 2002-12 period, resulting in 67,000 new jobs. The projected output growth rate of 61.3 percent surpasses the 42.0 percent rate experienced during the last decade and results in an $87 billion increase.

Water transportation is expected to experience a 3.9 percent decline in employment, losing 2,000 jobs. Following a period of no output growth in the preceding decade, the sector is projected to see output growth of 33.3 percent, producing an additional $7 billion worth of output.

Employment in railroad transportation is projected to decrease at the rate of 9.6 percent in the 2002-12 period, losing another 21,000 jobs after losing 30,000 in the previous decade. Output is expected to increase by 31.8 percent, adding $14 billion worth of output, surpassing the 18.9 percent growth of the preceding ten years.
Table 1-2. Transportation Major Sectors – Employment and Output, 2002 and Projected 2012\(^4\)
(Arranged in the Order of Highest Percentage Increase in Employment)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Employment</th>
<th></th>
<th>Output</th>
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<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>4,205</td>
<td>5,120</td>
<td>914</td>
<td>21.74%</td>
</tr>
<tr>
<td>Transit and Ground Passenger Transportation</td>
<td>372</td>
<td>488</td>
<td>116</td>
<td>31.18%</td>
</tr>
<tr>
<td>Warehousing and Storage</td>
<td>514</td>
<td>550</td>
<td>147</td>
<td>28.60%</td>
</tr>
<tr>
<td>Trucking Transportation, Couriers, Messengers</td>
<td>1,897</td>
<td>2,404</td>
<td>507</td>
<td>26.73%</td>
</tr>
<tr>
<td>Scenic and Sightseeing Transportation and Support Activities for Transportation</td>
<td>553</td>
<td>652</td>
<td>100</td>
<td>18.08%</td>
</tr>
<tr>
<td>Air Transportation</td>
<td>559</td>
<td>626</td>
<td>67</td>
<td>11.99%</td>
</tr>
<tr>
<td>Water Transportation</td>
<td>52</td>
<td>50</td>
<td>-2</td>
<td>-3.85%</td>
</tr>
<tr>
<td>Rail Transportation</td>
<td>218</td>
<td>197</td>
<td>-21</td>
<td>-9.63%</td>
</tr>
</tbody>
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Chart 1-2. Employment in Transportation Industry Sectors Percentage Change 2002-2012
(Arranged in the Order of Highest Percentage Increase in Employment)

Table 1-3. Transportation Major Sectors
Actual Annual Employment, 1993-2003
(Arranged in the Order of Highest Percentage Increase in Employment)

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<tbody>
<tr>
<td>Scenic and sightseeing</td>
<td>19</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>28</td>
<td>29</td>
<td>26</td>
<td>28</td>
<td>9</td>
<td>47.37%</td>
</tr>
<tr>
<td>Support activities for</td>
<td>382</td>
<td>405</td>
<td>430</td>
<td>446</td>
<td>473</td>
<td>497</td>
<td>518</td>
<td>537</td>
<td>539</td>
<td>525</td>
<td>516</td>
<td>134</td>
<td>35.08%</td>
</tr>
<tr>
<td>transportation</td>
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<td></td>
</tr>
<tr>
<td>Transit and ground</td>
<td>300</td>
<td>317</td>
<td>328</td>
<td>339</td>
<td>350</td>
<td>363</td>
<td>371</td>
<td>372</td>
<td>375</td>
<td>381</td>
<td>380</td>
<td>80</td>
<td>26.67%</td>
</tr>
<tr>
<td>passenger transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehousing and storage</td>
<td>413</td>
<td>431</td>
<td>444</td>
<td>452</td>
<td>462</td>
<td>474</td>
<td>494</td>
<td>514</td>
<td>514</td>
<td>517</td>
<td>522</td>
<td>109</td>
<td>26.39%</td>
</tr>
<tr>
<td>Local government</td>
<td>201</td>
<td>204</td>
<td>209</td>
<td>206</td>
<td>208</td>
<td>214</td>
<td>221</td>
<td>230</td>
<td>240</td>
<td>247</td>
<td>251</td>
<td>50</td>
<td>24.88%</td>
</tr>
<tr>
<td>passenger transit5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck transportation</td>
<td>1155</td>
<td>1206</td>
<td>1249</td>
<td>1282</td>
<td>1308</td>
<td>1354</td>
<td>1392</td>
<td>1406</td>
<td>1387</td>
<td>1339</td>
<td>1328</td>
<td>173</td>
<td>14.98%</td>
</tr>
<tr>
<td>Air transportation</td>
<td>517</td>
<td>511</td>
<td>511</td>
<td>526</td>
<td>542</td>
<td>563</td>
<td>586</td>
<td>614</td>
<td>615</td>
<td>564</td>
<td>527</td>
<td>10</td>
<td>1.93%</td>
</tr>
<tr>
<td>Water transportation</td>
<td>53</td>
<td>52</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>52</td>
<td>56</td>
<td>54</td>
<td>53</td>
<td>53</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rail transportation</td>
<td>242</td>
<td>235</td>
<td>233</td>
<td>225</td>
<td>221</td>
<td>225</td>
<td>229</td>
<td>232</td>
<td>227</td>
<td>218</td>
<td>215</td>
<td>-27</td>
<td>-11.16%</td>
</tr>
</tbody>
</table>

Key Industry Organizations - Summary

The major transportation industry associations and organizations include (see Appendix A for key association profiles):

Cross Sector
- American Association of State Highway and Transportation Officials, [www.transportation1.org](http://www.transportation1.org)
- Intermodal Association of North America, [www.intermodal.org](http://www.intermodal.org)
- The National Industrial Transportation League, [www.nitl.org](http://www.nitl.org)

Transit and Ground Passenger Transportation
- American Bus Association, [www.buses.org](http://www.buses.org)
- American Public Transportation Association, [www.apta.com](http://www.apta.com)
- Community Transportation Association of America, [www.ctaa.org](http://www.ctaa.org)
- National School Transportation Association, [www.schooltrans.com](http://www.schooltrans.com)

Trucking, Warehousing and Logistics
- The American Society of Transportation & Logistics, [www.astl.org](http://www.astl.org)
- International Warehouse Logistics Association, [www.iwla.com](http://www.iwla.com)
- Motor Freight Carriers Association, [www.mfca.org](http://www.mfca.org)
- Professional Truck Driver Institute, [www.ptdi.org](http://www.ptdi.org)

5 Local government passenger transit is not part of the transportation and warehousing industry as defined by BLS. It is included in this table because the large number of workers it employs to provide public transit services.
• Truckload Carriers Association, www.truckload.org

Air Transportation
• Air Transport Association, www.airlines.org
• The International Air Cargo Association, www.tiaca.org

Water Transportation
• American Association of Port Authorities, www.aapa-ports.org
• American Waterways Operators, www.americanwaterways.com
• Lake Carriers’ Association, www.lcaships.com
• National Association Marine Services, www.namsshipchandler.com
• American Maritime Congress, www.us-flag.org
• Offshore Marine Services Association, www.offshoremarine.org
• Pacific Maritime Association, www.pmanet.org
• The Transportation Institute, www.trans-inst.org

Rail Transportation
• American Short Line and Regional Railroad Association, www.aslrra.org
• Association of American Railroads, www.aar.org

Key Unions - Summary

Major union organizations representing transportation workers are (see Appendix A for key union profiles):

Cross Sector
• Communication Workers of America, www.cwa-union.org
• International Brotherhood of Electrical Workers, www.ibew.org
• International Association of Machinists and Aerospace Workers, www.iamaw.org
• Service Employees International Union, www.seiu.org
• American Federation of State, County and Municipal Employees, www.afscme.org
• International Brotherhood of Teamsters, www.teamsters.org
• Amalgamated Transit Union, www.atu.org
• Transport Workers Union of America, www.twu.org
• Transportation Communications International Union, www.tcunion.org
• United Transportation Union, www.utu.org

Transit and Ground Passenger Transportation
• Amalgamated Transit Union, www.atu.org
• Transport Workers Union of America, www.twu.org

Longshore and Warehousing
• International Longshore and Warehouse Union, www.ilwu.org
• International Longshoremen’s Association, http://ilaunion.org
**Air Transportation**
- Professional Airways Systems Specialists, www.passnational.org

**Water Transportation**
- Marine Engineers Beneficial Association, www.d1meba.org
- Inlandboatmen’s Union of the Pacific, www.ibu.org
- International Organization of Masters, Mates & Pilots, www.bridgedeck.org
- Sailor’s Union of the Pacific, www.sailors.org
- Seafarers International Union, www.seafarers.org

**Rail Transportation**
- International Brotherhood of Boilermakers, Blacksmiths, Forgers and Helpers, www.boilermakers.org
- Brotherhood of Locomotive Engineers, www.ble.org
- Brotherhood of Maintenance of Way Employees, www.bmwe.org
- Brotherhood of Railroad Signalmen, www.brs.org

**Joint Workforce Development Initiatives - Summary**

This section of the report summarizes joint labor-management and partnership workforce development initiatives in the transportation industry (see Appendix A for details).

**Transit and Ground Passenger Transportation**
- Selected Joint Transit Training/Apprenticeship Programs
- Transportation Learning Center, www.transportcenter.org

**Trucking and Warehousing**
- Joint Truck Driver and Safety Training
- Professional Truck Driver Institute, www.ptdi.org
- Skills for Tomorrow Project, www.ibtstw.org

**Water Transportation**
- The Calhoon MEBA Engineering School, www.mebaschool.org
- Maritime Institute of Technology and Graduate Studies, www.mitags.org
- Pacific Coast Maritime Consortium, www.pacmarcon.org
- Paul Hall Center for Maritime Training and Education, www.seafarers.org/phc/schoolHistory.xml

**Rail Transportation**
- Rail Workers Hazardous Materials Training Program
### Part 2. Transportation Industry Employers

**Table 2-1. Top Ten Transit Agencies – 2001 Revenues and Employment**

(Ranked by Revenues)

<table>
<thead>
<tr>
<th>Transit Agency</th>
<th>2001 Revenues (Dollars in Thousands)</th>
<th>2001 Employment</th>
<th>Operations Employees</th>
<th>Maintenance Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 New York City Metropolitan Transportation Authority</td>
<td>$2,863,000</td>
<td>56,345</td>
<td>26,004</td>
<td>24,521</td>
</tr>
<tr>
<td>2 Chicago Regional Transportation Authority</td>
<td>$601,000</td>
<td>16,085</td>
<td>8,961</td>
<td>5,144</td>
</tr>
<tr>
<td>3 New Jersey Transit Corporation</td>
<td>$485,000</td>
<td>9,166</td>
<td>5,093</td>
<td>3,049</td>
</tr>
<tr>
<td>4 Washington Metropolitan Area Transit Authority</td>
<td>$375,000</td>
<td>8,379</td>
<td>3,983</td>
<td>3,541</td>
</tr>
<tr>
<td>5 Massachusetts Bay Transportation Authority – Boston, MA</td>
<td>$304,000</td>
<td>6,575</td>
<td>3,663</td>
<td>2,448</td>
</tr>
<tr>
<td>6 Southeastern Pennsylvania Transportation Authority – Philadelphia, PA</td>
<td>$296,000</td>
<td>8,500</td>
<td>4,690</td>
<td>3,126</td>
</tr>
<tr>
<td>7 Los Angeles County Metropolitan Transportation Authority</td>
<td>$215,000</td>
<td>8,045</td>
<td>5,124</td>
<td>2,122</td>
</tr>
<tr>
<td>8 Metropolitan Atlanta Rapid Transit Authority</td>
<td>$101,000</td>
<td>4,829</td>
<td>2,558</td>
<td>1,120</td>
</tr>
<tr>
<td>9 King County Dept. of Transportation – Seattle, WA</td>
<td>$78,000</td>
<td>4,109</td>
<td>2,877</td>
<td>855</td>
</tr>
<tr>
<td>10 Metropolitan Transit Authority of Harris County – Houston, TX</td>
<td>$62,000</td>
<td>4,027</td>
<td>2,061</td>
<td>961</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>$5,380,000</strong></td>
<td><strong>126,060</strong></td>
<td><strong>65,014</strong></td>
<td><strong>46,887</strong></td>
</tr>
</tbody>
</table>

---

6 Source: American Public Transportation Association.
### Table 2-2. Top Ten Trucking Companies – 2002 Revenues and Employment
(Ranked by Revenues)

<table>
<thead>
<tr>
<th>Company</th>
<th>2002 Revenues (Dollars in Thousands)</th>
<th>2002 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Parcel Service</td>
<td>31,272,000</td>
<td>360,000</td>
</tr>
<tr>
<td>FedEx Corp.</td>
<td>22,500,000</td>
<td>219,000</td>
</tr>
<tr>
<td>Ryder System</td>
<td>4,776,265</td>
<td>27,800</td>
</tr>
<tr>
<td>CNF Inc.</td>
<td>4,762,119</td>
<td>26,200</td>
</tr>
<tr>
<td>Penske Truck Leasing Corp.</td>
<td>3,383,000</td>
<td>19,842</td>
</tr>
<tr>
<td>Roadway Corp.</td>
<td>3,010,776</td>
<td>26,700</td>
</tr>
<tr>
<td>Schneider National Inc.</td>
<td>2,627,000</td>
<td>13,613</td>
</tr>
<tr>
<td>Yellow Corp.</td>
<td>2,624,148</td>
<td>23,000</td>
</tr>
<tr>
<td>Exel (Americas)</td>
<td>2,594,000</td>
<td>18,700</td>
</tr>
<tr>
<td>USF Corp.</td>
<td>2,251,000</td>
<td>21,601</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>79,800,308</strong></td>
<td><strong>756,456</strong></td>
</tr>
</tbody>
</table>

### Table 2-3. Top Ten Port Authorities – 2003 Revenues and Employment
(Ranked by Revenues)

<table>
<thead>
<tr>
<th>Company</th>
<th>2003 Revenues (Dollars in Thousands)</th>
<th>2003 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle, Port of</td>
<td>$421,126</td>
<td>1,769</td>
</tr>
<tr>
<td>Los Angeles, Port of</td>
<td>$289,853</td>
<td>678</td>
</tr>
<tr>
<td>Long Beach, Port of</td>
<td>$223,998</td>
<td>336</td>
</tr>
<tr>
<td>Portland (OR), Port of</td>
<td>$216,500</td>
<td>760</td>
</tr>
<tr>
<td>Oakland, Port of</td>
<td>$206,045</td>
<td>707</td>
</tr>
<tr>
<td>San Diego, Unified Port of</td>
<td>$179,550</td>
<td>606</td>
</tr>
<tr>
<td>Houston Authority, Port of</td>
<td>$151,847</td>
<td>486</td>
</tr>
<tr>
<td>Virginia Port Authority</td>
<td>$130,798</td>
<td>138</td>
</tr>
<tr>
<td>New York/New Jersey, Port Authority of</td>
<td>$125,814</td>
<td>200</td>
</tr>
<tr>
<td>Georgia Ports Authority</td>
<td>$104,669</td>
<td>780</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>$2,050,200</strong></td>
<td><strong>6,460</strong></td>
</tr>
</tbody>
</table>

---

8 Source: American Association of Port Authorities, Department of Information. Ranking is based on maritime revenues only.
<table>
<thead>
<tr>
<th>Company</th>
<th>2002 Revenues (Dollars in Thousands)</th>
<th>2002 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 C.H. Robinson Worldwide</td>
<td>3,294,473</td>
<td>3,814</td>
</tr>
<tr>
<td>2 Expeditors International of Washington</td>
<td>2,296,900</td>
<td>8,000</td>
</tr>
<tr>
<td>3 SIRVA, Inc.</td>
<td>2,185,600</td>
<td>7,500</td>
</tr>
<tr>
<td>4 BAX Global Inc.</td>
<td>1,871,500&lt;sup&gt;10&lt;/sup&gt;</td>
<td>10,000</td>
</tr>
<tr>
<td>5 Pacer International Inc.</td>
<td>1,610,000</td>
<td>1,543</td>
</tr>
<tr>
<td>6 GATX Corporation</td>
<td>1,340,700</td>
<td>2,800</td>
</tr>
<tr>
<td>7 Hub Group Inc</td>
<td>1,335,660</td>
<td>1,405</td>
</tr>
<tr>
<td>8 GeoLogistics</td>
<td>1,200,000</td>
<td>6,000</td>
</tr>
<tr>
<td>9 UTI Worldwide Inc.</td>
<td>1,170,060</td>
<td>10,079</td>
</tr>
<tr>
<td>10 Vitran Corp Inc (Canada &amp; U.S.)</td>
<td>301,985</td>
<td>2,880</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>6,958,405</strong></td>
<td><strong>54,021</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company</th>
<th>2002 Revenues (Dollars in Thousands)</th>
<th>2002 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AMR Corp (American; American Eagle)</td>
<td>17,299,000</td>
<td>109,600</td>
</tr>
<tr>
<td>2 UAL Corp. (United Airlines Inc.)</td>
<td>14,286,000</td>
<td>72,000</td>
</tr>
<tr>
<td>3 Delta Airlines Inc.</td>
<td>13,305,000</td>
<td>75,100</td>
</tr>
<tr>
<td>4 Northwest Airlines Corp.</td>
<td>9,489,000</td>
<td>44,323</td>
</tr>
<tr>
<td>5 Continental Airlines Inc.</td>
<td>8,402,000</td>
<td>43,900</td>
</tr>
<tr>
<td>6 US Airways Group Inc.</td>
<td>6,977,000</td>
<td>37,100</td>
</tr>
<tr>
<td>7 Southwest Airlines Co.</td>
<td>5,521,800</td>
<td>33,705</td>
</tr>
<tr>
<td>8 Alaska Air Group Inc.</td>
<td>2,224,100</td>
<td>14,943</td>
</tr>
<tr>
<td>9 American West Holdings Corp.</td>
<td>2,047,100</td>
<td>12,111</td>
</tr>
<tr>
<td>10 Atlantic Coast Airlines Holdings, Inc.</td>
<td>760,500</td>
<td>4,815</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>80,311,500</strong></td>
<td><strong>447,597</strong></td>
</tr>
</tbody>
</table>

<sup>9</sup> Source: Yahoo! Finance, Hoover’s.com.
<sup>10</sup> BAX Global derives more than 70% of its revenue from international business
<sup>11</sup> Source: Yahoo! Finance, Industry Center - Airline.
### Table 2-6. Top Ten Water Transportation Companies – 2002 Revenues and Employment ( Ranked by Revenues)

<table>
<thead>
<tr>
<th>Company</th>
<th>2002 Revenues (Dollars in Thousands)</th>
<th>2002 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Stolt-Nielsen SA</td>
<td>3,100,000</td>
<td>13,000</td>
</tr>
<tr>
<td>2 CP Ships Ltd</td>
<td>3,000,000</td>
<td>4,400</td>
</tr>
<tr>
<td>3 Sea Containers Ltd</td>
<td>1,700,000</td>
<td>9,700</td>
</tr>
<tr>
<td>4 Teekay Shipping Corp</td>
<td>1,300,000</td>
<td>4,100</td>
</tr>
<tr>
<td>5 Alexander &amp; Baldwin Inc</td>
<td>1,200,000</td>
<td>2,025</td>
</tr>
<tr>
<td>6 Frontline, LTD</td>
<td>923,900</td>
<td>40</td>
</tr>
<tr>
<td>7 Kirby Corp</td>
<td>601,300</td>
<td>1,950</td>
</tr>
<tr>
<td>8 Overseas Shipholding Group, Inc.</td>
<td>427,300</td>
<td>1,731</td>
</tr>
<tr>
<td>9 Seacor Smit Inc</td>
<td>405,000</td>
<td>3,400</td>
</tr>
<tr>
<td>10 General Maritime Corp</td>
<td>391,500</td>
<td>147</td>
</tr>
<tr>
<td><strong>Top Ten Total</strong></td>
<td><strong>13,049,000</strong></td>
<td><strong>40,493</strong></td>
</tr>
</tbody>
</table>

### Table 2-7. Top Eight Railroad Freight and Passenger Companies – 2002 Revenues and Employment ( Ranked by Revenues)

<table>
<thead>
<tr>
<th>Company</th>
<th>2002 Revenues (Dollars in Thousands)</th>
<th>2002 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Union Pacific Railroad Company</td>
<td>11,103,021</td>
<td>47,000</td>
</tr>
<tr>
<td>2 Burlington Northern and Santa Fe Railway</td>
<td>8,962,920</td>
<td>36,000</td>
</tr>
<tr>
<td>3 CSX Transportation Inc.</td>
<td>6,368,140</td>
<td>31,574</td>
</tr>
<tr>
<td>4 Norfolk Southern Combined Railroad</td>
<td>6,269,821</td>
<td>28,970</td>
</tr>
<tr>
<td>5 National Railroad Passenger Corporation (Amtrak)</td>
<td>2,228,200</td>
<td>22,000</td>
</tr>
<tr>
<td>6 Canadian National/Grand Trunk Western Railroad Company</td>
<td>1,511,577</td>
<td>6,152</td>
</tr>
<tr>
<td>7 Kansas City Southern Railway Company</td>
<td>559,560</td>
<td>2,707</td>
</tr>
<tr>
<td>8 Soo Line Railroad Company</td>
<td>552,226</td>
<td>2,800</td>
</tr>
<tr>
<td><strong>Top Eight Total</strong></td>
<td><strong>37,555,465</strong></td>
<td><strong>177,203</strong></td>
</tr>
</tbody>
</table>

---

12 Source: Yahoo! Finance.
13 Source: “Statistics of Class I Freight Railroads in the United States 2002.” Surface Transportation Board, Office of Economics, Environmental Analysis and Administration. Class I railroads are defined as railroads earning adjusted annual operating revenues for three consecutive years of $250,000,000 or more.
14 Source: Yahoo! Finance.
Part 3. Overall Transportation Industry Occupations  

**Highlights**

- Occupations involving heavy or light truck driving employ the most workers in both 2002 and 2012, accounting for over a quarter of the total employment in the transportation industry.

- Three out of the top ten transportation industry occupations with the highest percentage increase are IT related and typically require a minimum of associate or bachelor level education. However, the numeric increase in jobs in these ten occupations accounts for less than 1 percent of the overall transportation industry job gain.

- Four out of the top ten transportation industry occupations with the highest numeric increase during the 2002-12 period involve truck or bus driving, while another three are related to moving materials. With the exception of general and operations managers and flight attendants, all of the top ten occupations require only short- to moderate-term OJT training. These occupations account for almost 60 percent of employment increases in the transportation industry.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death, truck drivers, laborers and movers, ticket agents, and school bus drivers top the list of occupational employment between 2002 and 2012. This reflects the need of moderate-term OJT training for a minimum of 282,000 heavy and tractor-trailer truck drivers, and short-term OJT training for a minimum of 149,000 laborers and movers over the ten year period. See Table 3-5 A for details.

- Airline pilots, business operations specialists, sales workers, bus mechanics and diesel engine specialists, and supervisors of helpers have the highest rate of increased training needs, while comparing the net new hires (or minimum training needs) between 2002 and 2012 with the actual 2002 employment. Most of these occupations require higher level of education or training than the rest of the list. See Table 3-5 B for details.

---

16 This measure is referred to as *Net New Hires* in Table 3-5.
### Table 3-1. Transportation Industry Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
<td>914,100</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>790,257</td>
<td>997,884</td>
<td>207,627</td>
</tr>
<tr>
<td>2 Laborers and freight, stock, and material movers, hand</td>
<td>377,213</td>
<td>421,347</td>
<td>44,134</td>
</tr>
<tr>
<td>3 Truck drivers, light or delivery services</td>
<td>278,152</td>
<td>390,164</td>
<td>112,011</td>
</tr>
<tr>
<td>4 Reservation and transportation ticket agents and travel clerks</td>
<td>126,134</td>
<td>135,732</td>
<td>9,598</td>
</tr>
<tr>
<td>5 Bus drivers, school</td>
<td>124,269</td>
<td>161,728</td>
<td>37,459</td>
</tr>
<tr>
<td>6 Industrial truck and tractor operators</td>
<td>119,520</td>
<td>146,574</td>
<td>27,054</td>
</tr>
<tr>
<td>7 Travel agents</td>
<td>98,064</td>
<td>113,629</td>
<td>15,565</td>
</tr>
<tr>
<td>8 Office clerks, general</td>
<td>88,493</td>
<td>99,973</td>
<td>11,480</td>
</tr>
<tr>
<td>9 Aircraft mechanics and service technicians</td>
<td>83,314</td>
<td>96,574</td>
<td>13,260</td>
</tr>
<tr>
<td>10 Customer service representatives</td>
<td>77,843</td>
<td>100,276</td>
<td>22,433</td>
</tr>
</tbody>
</table>

### Table 3-2. Transportation Industry Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
<td>914,100</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>790,257</td>
<td>997,884</td>
<td>207,627</td>
</tr>
<tr>
<td>2 Laborers and freight, stock, and material movers, hand</td>
<td>377,213</td>
<td>421,347</td>
<td>44,134</td>
</tr>
<tr>
<td>3 Truck drivers, light or delivery services</td>
<td>278,152</td>
<td>390,164</td>
<td>112,011</td>
</tr>
<tr>
<td>4 Reservation and transportation ticket agents and travel clerks</td>
<td>126,134</td>
<td>135,732</td>
<td>9,598</td>
</tr>
<tr>
<td>5 Bus drivers, school</td>
<td>124,269</td>
<td>161,728</td>
<td>37,459</td>
</tr>
<tr>
<td>6 Industrial truck and tractor operators</td>
<td>119,520</td>
<td>146,574</td>
<td>27,054</td>
</tr>
<tr>
<td>7 Travel agents</td>
<td>98,064</td>
<td>113,629</td>
<td>15,565</td>
</tr>
<tr>
<td>8 Office clerks, general</td>
<td>88,493</td>
<td>99,973</td>
<td>11,480</td>
</tr>
<tr>
<td>9 Aircraft mechanics and service technicians</td>
<td>83,314</td>
<td>96,574</td>
<td>13,260</td>
</tr>
<tr>
<td>10 Bus drivers, transit and intercity</td>
<td>74,636</td>
<td>97,494</td>
<td>22,858</td>
</tr>
</tbody>
</table>
Table 3-3. Transportation Industry Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
</tr>
<tr>
<td>1 Network systems and data communications analysts</td>
<td>1,132</td>
<td>1,892</td>
</tr>
<tr>
<td>2 Farm, ranch, and other agricultural managers</td>
<td>52</td>
<td>84</td>
</tr>
<tr>
<td>3 Door-to-door sales workers, news and street vendors, and related workers</td>
<td>680</td>
<td>1,091</td>
</tr>
<tr>
<td>4 Emergency medical technicians and paramedics</td>
<td>4,019</td>
<td>6,315</td>
</tr>
<tr>
<td>5 Database administrators</td>
<td>1,498</td>
<td>2,345</td>
</tr>
<tr>
<td>6 Computer-controlled machine tool operators, metal and plastic</td>
<td>81</td>
<td>124</td>
</tr>
<tr>
<td>7 Pharmacists</td>
<td>432</td>
<td>652</td>
</tr>
<tr>
<td>8 Computer software engineers, applications</td>
<td>1,519</td>
<td>2,283</td>
</tr>
<tr>
<td>9 Slaughterers and meatpackers</td>
<td>82</td>
<td>122</td>
</tr>
<tr>
<td>10 Coin, vending, and amusement machine servicers and repairers</td>
<td>102</td>
<td>152</td>
</tr>
</tbody>
</table>

Table 3-4. Transportation Industry Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>790,257</td>
<td>997,884</td>
</tr>
<tr>
<td>2 Truck drivers, light or delivery services</td>
<td>278,152</td>
<td>390,164</td>
</tr>
<tr>
<td>3 Laborers and freight, stock, and material movers, hand</td>
<td>377,213</td>
<td>421,347</td>
</tr>
<tr>
<td>4 Bus drivers, school</td>
<td>124,269</td>
<td>161,728</td>
</tr>
<tr>
<td>5 Industrial truck and tractor operators</td>
<td>119,520</td>
<td>146,574</td>
</tr>
<tr>
<td>6 Bus drivers, transit and intercity</td>
<td>74,636</td>
<td>97,494</td>
</tr>
<tr>
<td>7 Customer service representatives</td>
<td>77,843</td>
<td>100,276</td>
</tr>
<tr>
<td>8 General and operations managers</td>
<td>59,351</td>
<td>76,736</td>
</tr>
<tr>
<td>9 Packers and packagers, hand</td>
<td>48,585</td>
<td>65,830</td>
</tr>
<tr>
<td>10 Flight attendants</td>
<td>98,064</td>
<td>113,629</td>
</tr>
</tbody>
</table>
Table 3-5. Employment, Wages and Education/Training Requirements –
Total Transportation Industry Occupations with the Most Jobs in 2002 and 2012,
and with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total employment</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
<td>914,100</td>
<td>21.7%</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>790,257</td>
<td>997,884</td>
<td>207,627</td>
<td>26.3%</td>
<td>1,337,000</td>
</tr>
<tr>
<td>2 Laborers and freight, stock, and material movers, hand</td>
<td>377,213</td>
<td>421,347</td>
<td>44,134</td>
<td>11.7%</td>
<td>888,000</td>
</tr>
<tr>
<td>3 Truck drivers, light or delivery services</td>
<td>278,152</td>
<td>390,164</td>
<td>112,011</td>
<td>40.3%</td>
<td>596,000</td>
</tr>
<tr>
<td>4 Reservation and transportation ticket agents and travel clerks</td>
<td>126,134</td>
<td>135,732</td>
<td>9,598</td>
<td>7.6%</td>
<td>249,000</td>
</tr>
<tr>
<td>5 Bus drivers, school</td>
<td>124,269</td>
<td>161,728</td>
<td>37,459</td>
<td>30.1%</td>
<td>209,000</td>
</tr>
<tr>
<td>6 Industrial truck and tractor operators</td>
<td>119,520</td>
<td>146,574</td>
<td>27,054</td>
<td>22.6%</td>
<td>189,000</td>
</tr>
<tr>
<td>7 Airline pilots, copilots, and flight engineers</td>
<td>70,960</td>
<td>84,713</td>
<td>13,754</td>
<td>19.4%</td>
<td>54,000</td>
</tr>
<tr>
<td>8 Aircraft mechanics and service technicians</td>
<td>83,314</td>
<td>96,574</td>
<td>13,260</td>
<td>15.9%</td>
<td>76,000</td>
</tr>
</tbody>
</table>

17 The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:

\[
\text{Total job openings of an occupation in a particular industry/sector} = (2002-2012 \text{ Economy-wide total job openings for the occupation}) \times (2002 \text{ Percentage distribution of industry occupational employment})
\]

For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (~ 630,000 * 44.72%). The validity of this measure needs further scrutiny.

18 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

19 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

20 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Customer service representatives</td>
<td>77,843</td>
<td>100,276</td>
<td>22,433</td>
<td>172,000</td>
<td>50,000</td>
<td>32,000</td>
<td>75.0%</td>
<td>50.0%</td>
<td>25.0%</td>
<td>38.5%</td>
<td>38.5%</td>
<td>0.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>10</td>
<td>Office clerks, general</td>
<td>88,493</td>
<td>99,973</td>
<td>11,480</td>
<td>163,000</td>
<td>29,000</td>
<td>22,000</td>
<td>50.0%</td>
<td>30.0%</td>
<td>20.0%</td>
<td>32.8%</td>
<td>32.8%</td>
<td>0.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>11</td>
<td>Flight attendants</td>
<td>98,064</td>
<td>113,629</td>
<td>15,565</td>
<td>217,000</td>
<td>28,000</td>
<td>22,000</td>
<td>42.5%</td>
<td>36.5%</td>
<td>6.0%</td>
<td>28.6%</td>
<td>28.6%</td>
<td>0.0%</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>12</td>
<td>Bus and truck mechanics and diesel engine specialists</td>
<td>67,964</td>
<td>81,339</td>
<td>13,374</td>
<td>71,000</td>
<td>28,000</td>
<td>41.0%</td>
<td>54.2%</td>
<td>49.2%</td>
<td>5.0%</td>
<td>41.2%</td>
<td>41.2%</td>
<td>0.0%</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>13</td>
<td>Bus drivers, transit and intercity</td>
<td>74,636</td>
<td>97,494</td>
<td>22,858</td>
<td>122,000</td>
<td>26,000</td>
<td>34.8%</td>
<td>40.8%</td>
<td>33.8%</td>
<td>7.0%</td>
<td>34.8%</td>
<td>34.8%</td>
<td>0.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>14</td>
<td>Dispatchers, except police, fire, and ambulance</td>
<td>68,795</td>
<td>82,462</td>
<td>13,667</td>
<td>113,000</td>
<td>26,000</td>
<td>34.9%</td>
<td>35.3%</td>
<td>31.3%</td>
<td>4.0%</td>
<td>34.9%</td>
<td>34.9%</td>
<td>0.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>15</td>
<td>First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>68,314</td>
<td>82,561</td>
<td>14,248</td>
<td>76,000</td>
<td>23,000</td>
<td>33.7%</td>
<td>37.7%</td>
<td>31.7%</td>
<td>6.0%</td>
<td>20.9%</td>
<td>20.9%</td>
<td>0.0%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>16</td>
<td>General and operations managers</td>
<td>59,351</td>
<td>76,136</td>
<td>17,385</td>
<td>75,000</td>
<td>22,000</td>
<td>37.1%</td>
<td>37.1%</td>
<td>37.1%</td>
<td>0.0%</td>
<td>29.3%</td>
<td>29.3%</td>
<td>0.0%</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>17</td>
<td>Taxi drivers and chauffeurs</td>
<td>58,923</td>
<td>74,195</td>
<td>15,273</td>
<td>125,000</td>
<td>18,000</td>
<td>30.5%</td>
<td>30.5%</td>
<td>30.5%</td>
<td>0.0%</td>
<td>25.9%</td>
<td>25.9%</td>
<td>0.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>18</td>
<td>Packers and packagers, hand</td>
<td>48,585</td>
<td>65,830</td>
<td>17,245</td>
<td>105,000</td>
<td>16,000</td>
<td>32.9%</td>
<td>32.9%</td>
<td>32.9%</td>
<td>0.0%</td>
<td>35.5%</td>
<td>35.5%</td>
<td>0.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>19</td>
<td>First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>34,365</td>
<td>43,604</td>
<td>9,239</td>
<td>37,000</td>
<td>14,000</td>
<td>40.7%</td>
<td>40.7%</td>
<td>40.7%</td>
<td>0.0%</td>
<td>26.9%</td>
<td>26.9%</td>
<td>0.0%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>20</td>
<td>Transportation, storage, and distribution managers</td>
<td>36,785</td>
<td>48,723</td>
<td>11,938</td>
<td>43,000</td>
<td>13,000</td>
<td>35.3%</td>
<td>35.3%</td>
<td>35.3%</td>
<td>0.0%</td>
<td>32.5%</td>
<td>32.5%</td>
<td>0.0%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>21</td>
<td>All other business operations specialists</td>
<td>27,179</td>
<td>40,090</td>
<td>12,911</td>
<td>42,000</td>
<td>12,000</td>
<td>44.2%</td>
<td>44.2%</td>
<td>44.2%</td>
<td>0.0%</td>
<td>47.5%</td>
<td>47.5%</td>
<td>0.0%</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>22</td>
<td>Couriers and messengers</td>
<td>40,865</td>
<td>50,525</td>
<td>9,660</td>
<td>77,000</td>
<td>12,000</td>
<td>29.4%</td>
<td>29.4%</td>
<td>29.4%</td>
<td>0.0%</td>
<td>23.6%</td>
<td>23.6%</td>
<td>0.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>23</td>
<td>Shipping, receiving, and traffic clerks</td>
<td>51,087</td>
<td>60,549</td>
<td>9,462</td>
<td>98,000</td>
<td>12,000</td>
<td>23.5%</td>
<td>23.5%</td>
<td>23.5%</td>
<td>0.0%</td>
<td>18.5%</td>
<td>18.5%</td>
<td>0.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>24</td>
<td>All other sales and related workers</td>
<td>26,172</td>
<td>34,728</td>
<td>8,555</td>
<td>50,000</td>
<td>11,000</td>
<td>42.0%</td>
<td>42.0%</td>
<td>42.0%</td>
<td>0.0%</td>
<td>32.7%</td>
<td>32.7%</td>
<td>0.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>25</td>
<td>Maintenance and repair workers, general</td>
<td>30,020</td>
<td>38,379</td>
<td>8,360</td>
<td>37,000</td>
<td>11,000</td>
<td>36.6%</td>
<td>36.6%</td>
<td>36.6%</td>
<td>0.0%</td>
<td>27.8%</td>
<td>27.8%</td>
<td>0.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
</tbody>
</table>
### B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total employment</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation</td>
<td>4,205,300</td>
<td>5,119,400</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Airline pilots, copilots, and flight engineers</td>
<td>70,960</td>
<td>84,713</td>
<td>54,000</td>
<td>109,580</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>2 All other business operations specialists</td>
<td>27,179</td>
<td>40,090</td>
<td>42,000</td>
<td>50,680</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>3 All other sales and related workers</td>
<td>26,172</td>
<td>34,728</td>
<td>50,000</td>
<td>35,170</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>4 Bus and truck mechanics and diesel engine specialists</td>
<td>67,964</td>
<td>81,339</td>
<td>71,000</td>
<td>34,380</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>5 First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>34,365</td>
<td>43,604</td>
<td>37,000</td>
<td>37,180</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>6 Reservation and transportation ticket agents and travel clerks</td>
<td>126,134</td>
<td>135,732</td>
<td>249,000</td>
<td>25,350</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>7 Laborers and freight, stock, and material movers, hand</td>
<td>377,213</td>
<td>421,347</td>
<td>888,000</td>
<td>19,710</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>8 Customer service representatives</td>
<td>77,843</td>
<td>100,276</td>
<td>172,000</td>
<td>26,240</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>9 Aircraft mechanics and service technicians</td>
<td>83,314</td>
<td>96,574</td>
<td>76,000</td>
<td>43,070</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>10 Bus drivers, school</td>
<td>124,269</td>
<td>161,728</td>
<td>209,000</td>
<td>22,390</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>11 General and operations managers</td>
<td>59,351</td>
<td>76,136</td>
<td>75,000</td>
<td>68,210</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>12 Maintenance and repair workers, general</td>
<td>30,020</td>
<td>38,379</td>
<td>37,000</td>
<td>29,370</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>13 Truck drivers, heavy and tractor-trailer</td>
<td>790,257</td>
<td>997,884</td>
<td>1,337,000</td>
<td>33,210</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>14 Transportation, storage, and distribution managers</td>
<td>36,785</td>
<td>48,723</td>
<td>43,000</td>
<td>59,660</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>15 Dispatchers, except police, fire, and ambulance</td>
<td>68,795</td>
<td>82,462</td>
<td>113,000</td>
<td>30,280</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>16</td>
<td>Bus drivers, transit and intercity</td>
<td>74,636</td>
<td>97,494</td>
<td>22,858</td>
<td>30.6%</td>
</tr>
<tr>
<td>17</td>
<td>First-line supervisors/managers of transportation and material-moving</td>
<td>68,314</td>
<td>82,561</td>
<td>14,248</td>
<td>20.9%</td>
</tr>
<tr>
<td></td>
<td>machine and vehicle operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Packers and packagers, hand</td>
<td>48,585</td>
<td>65,830</td>
<td>17,245</td>
<td>35.5%</td>
</tr>
<tr>
<td>19</td>
<td>Office clerks, general</td>
<td>88,493</td>
<td>99,973</td>
<td>11,480</td>
<td>13.0%</td>
</tr>
<tr>
<td>20</td>
<td>Truck drivers, light or delivery services</td>
<td>278,152</td>
<td>390,164</td>
<td>112,011</td>
<td>40.3%</td>
</tr>
<tr>
<td>21</td>
<td>Taxi drivers and chauffeurs</td>
<td>58,923</td>
<td>74,195</td>
<td>15,273</td>
<td>25.9%</td>
</tr>
<tr>
<td>22</td>
<td>Industrial truck and tractor operators</td>
<td>119,520</td>
<td>146,574</td>
<td>27,054</td>
<td>22.6%</td>
</tr>
<tr>
<td>23</td>
<td>Couriers and messengers</td>
<td>40,865</td>
<td>50,525</td>
<td>9,660</td>
<td>23.6%</td>
</tr>
<tr>
<td>24</td>
<td>Flight attendants</td>
<td>98,064</td>
<td>113,629</td>
<td>15,565</td>
<td>15.9%</td>
</tr>
<tr>
<td>25</td>
<td>Shipping, receiving, and traffic clerks</td>
<td>51,087</td>
<td>60,549</td>
<td>9,462</td>
<td>18.5%</td>
</tr>
</tbody>
</table>

4/15/2004
Part 4. Transit and Ground Passenger Transportation Occupations

**Highlights**

- Workers in transit and ground passenger transportation held about 372,000 jobs in 2002. Employment in all occupations in this sector is projected to grow at a rate of 31 percent between 2002 and 2012, adding 116,200 new jobs.

- Bus drivers have the largest employment in both 2002 and projected 2012.

- The fastest growing occupations are varied. They include several business and professional occupations, truck drivers, emergency medical technicians (EMTs), rail car repairers, painters, rail operators, and waiters. However, these occupations are only a small part of this sector and thus account for less than 5 percent of job growth.

- Occupations that will have the most net job growth in transit and ground transportation include bus, taxi, truck, and ambulance drivers, bus and truck mechanics, dispatchers, ticket agents, EMTs, and transportation attendants. Eight out of the top ten occupations require only short to moderate-term OJT training, though average annual earnings for these positions are on the low side. Mechanic positions require a postsecondary vocational award and some OJT training, and the annual pay is higher than the group average.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death, bus drivers, taxi drivers, dispatchers, and bus and truck mechanics top the list of occupational employment between 2002 and 2012. This reflects the need of short to moderate-term OJT training for a minimum of more than 70,000 bus drivers, and vocational school and OJT training for a minimum of 4,235 bus and truck mechanics over the ten year period. See Table 4-5 for details.

- A large portion of public transportation services is categorized by BLS under local government passenger transit, separate from transit and ground passenger transportation. Local government transit employs a total of 231,000 workers in 2002. With a growth rate of 12.55 percent, employment is projected to reach 260,000 by 2012. Employment trends of selected transit-related occupations in local governments are shown in Table 4-6.
### Table 4-1. Transit and Ground Passenger Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500</td>
<td>487,700</td>
</tr>
<tr>
<td>1 Bus drivers, school</td>
<td>123,867</td>
<td>161,311</td>
</tr>
<tr>
<td>2 Bus drivers, transit and intercity</td>
<td>68,192</td>
<td>90,658</td>
</tr>
<tr>
<td>3 Taxi drivers and chauffeurs</td>
<td>55,724</td>
<td>70,595</td>
</tr>
<tr>
<td>4 Dispatchers, except police, fire, and ambulance</td>
<td>13,576</td>
<td>16,561</td>
</tr>
<tr>
<td>5 Bus and truck mechanics and diesel engine specialists</td>
<td>10,276</td>
<td>13,806</td>
</tr>
<tr>
<td>6 First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>5,692</td>
<td>7,538</td>
</tr>
<tr>
<td>7 Reservation and transportation ticket agents and travel clerks</td>
<td>5,554</td>
<td>7,778</td>
</tr>
<tr>
<td>8 Office clerks, general</td>
<td>5,430</td>
<td>6,630</td>
</tr>
<tr>
<td>9 Transportation attendants, except flight attendants and baggage porters</td>
<td>5,429</td>
<td>7,417</td>
</tr>
<tr>
<td>10 Child care workers</td>
<td>5,197</td>
<td>6,970</td>
</tr>
</tbody>
</table>

### Table 4-2. Transit and Ground Passenger Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500</td>
<td>487,700</td>
</tr>
<tr>
<td>1 Bus drivers, school</td>
<td>123,867</td>
<td>161,311</td>
</tr>
<tr>
<td>2 Bus drivers, transit and intercity</td>
<td>68,192</td>
<td>90,658</td>
</tr>
<tr>
<td>3 Taxi drivers and chauffeurs</td>
<td>55,724</td>
<td>70,595</td>
</tr>
<tr>
<td>4 Dispatchers, except police, fire, and ambulance</td>
<td>13,576</td>
<td>16,561</td>
</tr>
<tr>
<td>5 Bus and truck mechanics and diesel engine specialists</td>
<td>10,276</td>
<td>13,806</td>
</tr>
<tr>
<td>6 First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>5,692</td>
<td>7,538</td>
</tr>
<tr>
<td>7 Reservation and transportation ticket agents and travel clerks</td>
<td>5,554</td>
<td>7,778</td>
</tr>
<tr>
<td>8 Transportation attendants, except flight attendants and baggage porters</td>
<td>5,429</td>
<td>7,417</td>
</tr>
<tr>
<td>9 Child care workers</td>
<td>5,197</td>
<td>6,970</td>
</tr>
<tr>
<td>10 Truck drivers, heavy and tractor-trailer</td>
<td>4,221</td>
<td>6,727</td>
</tr>
</tbody>
</table>
### Table 4-3. Transit and Ground Passenger Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500</td>
<td>487,700</td>
</tr>
<tr>
<td>1 Public relations specialists</td>
<td>82</td>
<td>132</td>
</tr>
<tr>
<td>2 Truck drivers, heavy and tractor-trailer</td>
<td>4,221</td>
<td>6,727</td>
</tr>
<tr>
<td>3 All other business operations specialists</td>
<td>466</td>
<td>742</td>
</tr>
<tr>
<td>4 Emergency medical technicians and paramedics</td>
<td>3,778</td>
<td>5,979</td>
</tr>
<tr>
<td>5 Compensation, benefits, and job analysis specialists</td>
<td>73</td>
<td>115</td>
</tr>
<tr>
<td>6 Rail car repairers</td>
<td>325</td>
<td>510</td>
</tr>
<tr>
<td>7 Computer and information systems managers</td>
<td>93</td>
<td>146</td>
</tr>
<tr>
<td>8 Painters, transportation equipment</td>
<td>135</td>
<td>209</td>
</tr>
<tr>
<td>9 Subway, streetcar operators and all other rail transportation workers</td>
<td>158</td>
<td>242</td>
</tr>
<tr>
<td>10 Waiters and waitresses</td>
<td>59</td>
<td>90</td>
</tr>
</tbody>
</table>

### Table 4-4. Transit and Ground Passenger Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500</td>
<td>487,700</td>
</tr>
<tr>
<td>1 Bus drivers, school</td>
<td>123,867</td>
<td>161,311</td>
</tr>
<tr>
<td>2 Bus drivers, transit and intercity</td>
<td>68,192</td>
<td>90,658</td>
</tr>
<tr>
<td>3 Taxi drivers and chauffeurs</td>
<td>55,724</td>
<td>70,595</td>
</tr>
<tr>
<td>4 Bus and truck mechanics and diesel engine specialists</td>
<td>10,276</td>
<td>13,806</td>
</tr>
<tr>
<td>5 Dispatchers, except police, fire, and ambulance</td>
<td>13,576</td>
<td>16,561</td>
</tr>
<tr>
<td>6 Truck drivers, heavy and tractor-trailer</td>
<td>4,221</td>
<td>6,727</td>
</tr>
<tr>
<td>7 Reservation and transportation ticket agents and travel clerks</td>
<td>5,554</td>
<td>7,778</td>
</tr>
<tr>
<td>8 Emergency medical technicians and paramedics</td>
<td>3,778</td>
<td>5,979</td>
</tr>
<tr>
<td>9 Ambulance drivers and attendants, except emergency medical technicians</td>
<td>3,966</td>
<td>5,976</td>
</tr>
<tr>
<td>10 Transportation attendants, except flight attendants and baggage porters</td>
<td>5,429</td>
<td>7,417</td>
</tr>
</tbody>
</table>
Table 4-5. Employment, Wages and Education/Training Requirements – Transit and Ground Passenger Transportation Occupations with Most Jobs in 2002 and 2012, and Occupations with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500</td>
<td>487,700</td>
<td>116,200</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Bus drivers, school</td>
<td>123,867</td>
<td>161,311</td>
<td>37,444</td>
<td>208,012</td>
<td>46,529</td>
</tr>
<tr>
<td>2 Bus drivers, transit and intercity</td>
<td>68,192</td>
<td>90,658</td>
<td>22,465</td>
<td>111,441</td>
<td>23,639</td>
</tr>
<tr>
<td>3 Taxi drivers and chauffeurs</td>
<td>55,724</td>
<td>70,595</td>
<td>14,871</td>
<td>117,992</td>
<td>16,856</td>
</tr>
<tr>
<td>4 Dispatchers, except police, fire, and ambulance</td>
<td>13,576</td>
<td>16,561</td>
<td>2,985</td>
<td>22,372</td>
<td>4,794</td>
</tr>
<tr>
<td>5 Bus and truck mechanics and diesel engine specialists</td>
<td>10,276</td>
<td>13,806</td>
<td>3,530</td>
<td>10,780</td>
<td>4,235</td>
</tr>
<tr>
<td>6 Ambulance drivers and attendants, except emergency medical technicians</td>
<td>3,966</td>
<td>5,976</td>
<td>2,010</td>
<td>9,276</td>
<td>2,319</td>
</tr>
</tbody>
</table>

1 The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:


For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (= 630,000 * 44.72%). The validity of this measure needs further scrutiny.

2 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

3 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

4 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Reservation and transportation ticket agents and travel clerks</td>
<td>5,554</td>
<td>7,778</td>
<td>2,224</td>
<td>40.1%</td>
<td>10,955</td>
</tr>
<tr>
<td>8</td>
<td>Transportation attendants, except flight attendants and baggage porters</td>
<td>5,429</td>
<td>7,417</td>
<td>1,988</td>
<td>36.6%</td>
<td>12,474</td>
</tr>
<tr>
<td>9</td>
<td>Child care workers</td>
<td>5,197</td>
<td>6,970</td>
<td>1,773</td>
<td>34.1%</td>
<td>17,458</td>
</tr>
<tr>
<td>10</td>
<td>First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>5,692</td>
<td>7,538</td>
<td>1,846</td>
<td>32.4%</td>
<td>6,325</td>
</tr>
<tr>
<td>11</td>
<td>Office clerks, general</td>
<td>5,430</td>
<td>6,630</td>
<td>1,200</td>
<td>22.1%</td>
<td>9,900</td>
</tr>
<tr>
<td>12</td>
<td>Emergency medical technicians and paramedics</td>
<td>3,778</td>
<td>5,979</td>
<td>2,201</td>
<td>58.3%</td>
<td>6,752</td>
</tr>
<tr>
<td>13</td>
<td>General and operations managers</td>
<td>4,518</td>
<td>6,082</td>
<td>1,564</td>
<td>34.6%</td>
<td>5,720</td>
</tr>
<tr>
<td>14</td>
<td>Cleaners of vehicles and equipment</td>
<td>3,470</td>
<td>4,507</td>
<td>1,037</td>
<td>29.9%</td>
<td>7,474</td>
</tr>
<tr>
<td>15</td>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>4,221</td>
<td>6,727</td>
<td>2,506</td>
<td>59.4%</td>
<td>7,176</td>
</tr>
<tr>
<td>16</td>
<td>Automotive service technicians and mechanics</td>
<td>3,389</td>
<td>4,576</td>
<td>1,187</td>
<td>35.0%</td>
<td>4,100</td>
</tr>
<tr>
<td>17</td>
<td>Customer service representative</td>
<td>2,899</td>
<td>4,045</td>
<td>1,146</td>
<td>39.5%</td>
<td>6,285</td>
</tr>
<tr>
<td>18</td>
<td>Personal care and service workers, all other</td>
<td>1,870</td>
<td>2,429</td>
<td>622</td>
<td>34.5%</td>
<td>3,510</td>
</tr>
<tr>
<td>19</td>
<td>Truck drivers, light or delivery services</td>
<td>2,507</td>
<td>3,629</td>
<td>1,122</td>
<td>44.8%</td>
<td>5,256</td>
</tr>
<tr>
<td>20</td>
<td>Transportation, storage, and distribution managers</td>
<td>1,620</td>
<td>2,204</td>
<td>584</td>
<td>36.1%</td>
<td>1,898</td>
</tr>
</tbody>
</table>
### B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transit and Ground Passenger Transportation</td>
<td>371,500 487,700</td>
<td>116,200 31.3%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Ambulance drivers and attendants, except emergency medical technicians</td>
<td>3,966 5,976</td>
<td>2,010 50.7%</td>
<td>9,276 58.5%</td>
<td>19,100</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Emergency medical technicians and paramedics</td>
<td>3,778 5,979</td>
<td>2,201 58.3%</td>
<td>6,752 44.7%</td>
<td>19,100</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>Cleaners of vehicles and equipment</td>
<td>3,470 4,507</td>
<td>1,037 29.9%</td>
<td>7,474 43.7%</td>
<td>17,060</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Personal care and service workers, all other</td>
<td>1,870 2,429</td>
<td>622 34.5%</td>
<td>3,510 810</td>
<td>17,820</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Bus and truck mechanics and diesel engine specialists</td>
<td>10,276 13,806</td>
<td>3,530 34.3%</td>
<td>10,780 42,350</td>
<td>34,380</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>Reservation and transportation ticket agents and travel clerks</td>
<td>5,554 7,778</td>
<td>2,224 40.1%</td>
<td>10,955 219</td>
<td>25,350</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Child care workers</td>
<td>5,197 6,920</td>
<td>1,723 34.1%</td>
<td>17,458 2021</td>
<td>16,350</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Automotive service technicians and mechanics</td>
<td>3,389 4,576</td>
<td>1,187 35.0%</td>
<td>4,100 1,312</td>
<td>30,590</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Transportation attendants, except flight attendants and baggage porters</td>
<td>5,429 7,417</td>
<td>1,988 36.6%</td>
<td>12,474 2,079</td>
<td>18,720</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Customer service representative</td>
<td>2,899 4,045</td>
<td>1,146 39.5%</td>
<td>6,285 1,110</td>
<td>26,240</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Bus drivers, school</td>
<td>123,867 161,311</td>
<td>37,444 30.2%</td>
<td>208,012 46,529</td>
<td>22,390</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>4,518 6,082</td>
<td>1,564 34.6%</td>
<td>5,720 1,672</td>
<td>68,210</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>Transportation, storage, and distribution managers</td>
<td>1,620 2,204</td>
<td>584 36.1%</td>
<td>1,898 584</td>
<td>59,660</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>4,221 6,727</td>
<td>2,506 59.4%</td>
<td>7,176 1,512</td>
<td>33,210</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Table 4-6. Local Government Transit-related Occupational Employment Trends – Selected Occupations(^5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td><strong>Employment in local government</strong></td>
<td><strong>2002-2012 change in employment</strong></td>
<td><strong>2002-2012 Job Openings</strong></td>
<td><strong>2002 Median annual earnings (Dollars)</strong></td>
<td><strong>Education/training category</strong></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td><strong>2002</strong></td>
<td><strong>2012</strong></td>
<td><strong>Number</strong></td>
<td><strong>Percent</strong></td>
<td><strong>Total New Hires</strong></td>
</tr>
<tr>
<td>Total, all occupations in Local Government Passenger Transit</td>
<td>231,000</td>
<td>260,000</td>
<td>29,000</td>
<td>12.55%</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Bus drivers, transit and intercity</td>
<td>102,534</td>
<td>107,482</td>
<td>4,949</td>
<td>4.8%</td>
<td>167,574</td>
</tr>
<tr>
<td>2 Bus and truck mechanics and diesel engine specialists</td>
<td>21,883</td>
<td>20,977</td>
<td>-906</td>
<td>-4.1%</td>
<td>22,932</td>
</tr>
<tr>
<td>3 Dispatcher, except police, fire, and ambulance</td>
<td>11,872</td>
<td>11,903</td>
<td>31</td>
<td>0.3%</td>
<td>19,544</td>
</tr>
<tr>
<td>4 Transportation, storage, and distribution manager</td>
<td>5,553</td>
<td>6,150</td>
<td>597</td>
<td>10.8%</td>
<td>6,513</td>
</tr>
<tr>
<td>5 Rail car repairer</td>
<td>753</td>
<td>834</td>
<td>81</td>
<td>10.8%</td>
<td>512</td>
</tr>
</tbody>
</table>

\(^5\) Data are based on BLS table – Industry employment by occupation, 2002 and projected 2012, Local government, excluding education and hospitals.
Part 5. Warehousing and Storage Occupations

**Highlights:**

- The warehousing and storage industry provided 513,600 wage and salary jobs in 2002. Employment in all occupations in this sector is projected to grow at a rate of 29 percent between 2002 and 2012, adding 146,700 jobs.

- Laborers and freight, stock, and material movers had the largest employment in 2002, and are expected to have the largest employment in 2012.

- Four of the ten fastest growing occupations are computer-related. Other fast growing occupations include control and valve installers/repairers, chemical technicians, heating, air conditioning, and refrigeration mechanics/installers, electricians, public relations specialists, and business operations specialists. However, these occupations account for only 2 percent of new jobs in the sector.

- The top occupation for net job growth in the sector is industrial truck and tractor operator, which is projected to see job growth of 24.4 percent, or 26,070. Laborers and freight, stock, and material movers will also see significant job growth with a projected growth rate of 14.7 percent, or 14,332 jobs. With the exception of one managerial occupation, all of the top ten occupations for new jobs require only short- or moderate-term OJT training.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death, laborers, industrial truck and tractor operators, and stock clerks top the list of occupational employment between 2002 and 2012. This reflects the need of short-term OJT training for a minimum of 39,000 laborers, 19,000 truck and tractor operators, and 18,000 stock clerks over the ten year period. See Table 5-5A for details.

- Sales representatives, planning and expediting clerks, and supervisors of helpers have the highest rate of increased training needs, while comparing the net new hires between 2002 and 2012 with the actual 2002 employment.
### Table 5-1. Warehousing and Storage Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600</td>
<td>660,300</td>
</tr>
<tr>
<td>1 Laborers and freight, stock, and material movers, hand</td>
<td>97,708</td>
<td>112,041</td>
</tr>
<tr>
<td>2 Industrial truck and tractor operators</td>
<td>64,287</td>
<td>79,984</td>
</tr>
<tr>
<td>3 Stock clerks and order fillers</td>
<td>48,605</td>
<td>55,444</td>
</tr>
<tr>
<td>4 Shipping, receiving, and traffic clerks</td>
<td>29,037</td>
<td>34,867</td>
</tr>
<tr>
<td>5 Packers and packagers, hand</td>
<td>21,395</td>
<td>28,109</td>
</tr>
<tr>
<td>6 Truck drivers, heavy and tractor-trailer</td>
<td>20,517</td>
<td>27,448</td>
</tr>
<tr>
<td>7 Truck drivers, light or delivery services</td>
<td>9,880</td>
<td>13,218</td>
</tr>
<tr>
<td>8 Office clerks, general</td>
<td>9,493</td>
<td>12,348</td>
</tr>
<tr>
<td>9 Customer service representatives</td>
<td>9,270</td>
<td>13,844</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>9,191</td>
<td>11,681</td>
</tr>
</tbody>
</table>

### Table 5-2. Warehousing and Storage Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600</td>
<td>660,300</td>
</tr>
<tr>
<td>1 Laborers and freight, stock, and material movers, hand</td>
<td>97,708</td>
<td>112,041</td>
</tr>
<tr>
<td>2 Industrial truck and tractor operators</td>
<td>64,287</td>
<td>79,984</td>
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<td>55,444</td>
</tr>
<tr>
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<td>34,867</td>
</tr>
<tr>
<td>5 Packers and packagers, hand</td>
<td>21,395</td>
<td>28,109</td>
</tr>
<tr>
<td>6 Truck drivers, heavy and tractor-trailer</td>
<td>20,517</td>
<td>27,448</td>
</tr>
<tr>
<td>7 Truck drivers, light or delivery services</td>
<td>9,880</td>
<td>13,218</td>
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<td>12,348</td>
</tr>
<tr>
<td>9 Customer service representatives</td>
<td>9,270</td>
<td>13,844</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>9,191</td>
<td>11,681</td>
</tr>
</tbody>
</table>
### Table 5-3. Warehousing and Storage Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600</td>
<td>660,300</td>
</tr>
<tr>
<td>1 Network systems and data communications analysts</td>
<td>179</td>
<td>338</td>
</tr>
<tr>
<td>2 Database administrators</td>
<td>503</td>
<td>860</td>
</tr>
<tr>
<td>3 Control and valve installers and repairers, except mechanical door</td>
<td>101</td>
<td>173</td>
</tr>
<tr>
<td>4 Computer systems analysts</td>
<td>275</td>
<td>467</td>
</tr>
<tr>
<td>5 Chemical technicians</td>
<td>59</td>
<td>99</td>
</tr>
<tr>
<td>6 Heating, air conditioning, and refrigeration mechanics and installers</td>
<td>572</td>
<td>939</td>
</tr>
<tr>
<td>7 Electricians</td>
<td>513</td>
<td>842</td>
</tr>
<tr>
<td>8 Public relations specialists</td>
<td>77</td>
<td>127</td>
</tr>
<tr>
<td>9 Desktop publishers</td>
<td>51</td>
<td>83</td>
</tr>
<tr>
<td>10 All other business operations specialists</td>
<td>3,198</td>
<td>5,214</td>
</tr>
</tbody>
</table>

### Table 5-4. Warehousing and Storage Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600</td>
<td>660,300</td>
</tr>
<tr>
<td>1 Industrial truck and tractor operators</td>
<td>64,287</td>
<td>79,984</td>
</tr>
<tr>
<td>2 Laborers and freight, stock, and material movers, hand</td>
<td>97,708</td>
<td>112,041</td>
</tr>
<tr>
<td>3 Truck drivers, heavy and tractor-trailer</td>
<td>20,517</td>
<td>27,448</td>
</tr>
<tr>
<td>4 Stock clerks and order fillers</td>
<td>48,605</td>
<td>55,444</td>
</tr>
<tr>
<td>5 Packers and packagers, hand</td>
<td>21,395</td>
<td>28,109</td>
</tr>
<tr>
<td>6 Shipping, receiving, and traffic clerks</td>
<td>29,037</td>
<td>34,867</td>
</tr>
<tr>
<td>7 Customer service representatives</td>
<td>9,270</td>
<td>13,844</td>
</tr>
<tr>
<td>8 General and operations managers</td>
<td>7,865</td>
<td>11,418</td>
</tr>
<tr>
<td>9 Truck drivers, light or delivery services</td>
<td>9,880</td>
<td>13,218</td>
</tr>
<tr>
<td>10 Maintenance and repair workers, general</td>
<td>6,632</td>
<td>9,905</td>
</tr>
</tbody>
</table>
Table 5-5. Employment, Wages and Education/Training Requirements - Warehousing and Storage Occupations with Most Jobs in 2002 and 2012, and Occupations with Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in warehousing and storage</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600 660,300</td>
<td>146,700</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Laborers and freight, stock, and material movers, hand</td>
<td>97,708 112,041</td>
<td>14,332</td>
<td>230,000</td>
<td>39,000 39.9%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Industrial truck and tractor operators</td>
<td>64,287 79,984</td>
<td>15,697</td>
<td>102,000</td>
<td>19,000 29.6%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Stock clerks and order fillers</td>
<td>48,605 55,444</td>
<td>6,839</td>
<td>125,000</td>
<td>18,000 37.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>20,517 27,448</td>
<td>6,931</td>
<td>35,000 34.1%</td>
<td>33,210 33.8%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Packers and packagers, hand</td>
<td>21,395 28,109</td>
<td>6,714</td>
<td>46,000 32.7%</td>
<td>16,700 31.4%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Shipping, receiving, and traffic clerks</td>
<td>29,037 34,867</td>
<td>5,830</td>
<td>56,000 24.1%</td>
<td>23,420 20.1%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Customer service representatives</td>
<td>9,270 13,844</td>
<td>4,575</td>
<td>21,000 43.1%</td>
<td>26,240 49.3%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>9,191 11,681</td>
<td>2,490</td>
<td>10,000 43.5%</td>
<td>37,180 27.1%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>7,865 11,418</td>
<td>3,553</td>
<td>10,000 38.1%</td>
<td>68,210 45.2%</td>
<td>Degree plus work experience</td>
</tr>
</tbody>
</table>

1 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

2 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

3 Percent of Net New Hires is calculated by comparing the Net New Hires against the 2002 actual employment.
| 10 | Truck drivers, light or delivery services | 9,880 | 13,218 | 3,338 | 33.8% | 21,000 | 3,000 | 30.4% | 23,870 | Short-term on-the-job training |
| 11 | Sales representatives, wholesale and manufacturing, except technical and scientific products | 6,137 | 9,165 | 3,028 | 49.3% | 7,000 | 3,000 | 48.9% | 42,730 | Moderate-term on-the-job training |
| 12 | Office clerks, general | 9,493 | 12,348 | 2,854 | 30.1% | 18,000 | 3,000 | 31.6% | 22,280 | Short-term on-the-job training |
| 13 | Maintenance and repair workers, general | 6,632 | 9,905 | 3,273 | 49.3% | 8,000 | 2,000 | 30.2% | 29,370 | Moderate-term on-the-job training |
| 14 | Production, planning, and expediting clerks | 4,398 | 6,569 | 2,171 | 49.3% | 8,000 | 2,000 | 45.5% | 33,650 | Short-term on-the-job training |
| 15 | First-line supervisors/managers of office and administrative support workers | 7,573 | 9,699 | 2,126 | 28.1% | 7,000 | 2,000 | 26.4% | 38,820 | Work experience in a related occupation |
| 16 | Janitors and cleaners, except maids and housekeeping cleaners | 4,965 | 7,043 | 2,078 | 41.9% | 10,000 | 2,000 | 40.3% | 18,250 | Short-term on-the-job training |
| 17 | First-line supervisors/managers of transportation and material-moving machine and vehicle operators | 6,761 | 8,593 | 1,832 | 27.1% | 7,000 | 2,000 | 29.6% | 42,910 | Work experience in a related occupation |
| 18 | Inspectors, testers, sorters, samplers, and weighers | 5,117 | 7,814 | 2,697 | 52.7% | 7,000 | 1,000 | 19.5% | 27,060 | Moderate-term on-the-job training |
| 19 | All other business operations specialists | 3,198 | 5,214 | 2,016 | 63.0% | 5,000 | 1,000 | 31.3% | 50,680 | Bachelor's degree |
| 20 | Transportation, storage, and distribution managers | 4,074 | 6,086 | 2,011 | 49.4% | 5,000 | 1,000 | 24.5% | 59,660 | Work experience in a related occupation |
B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in warehousing and storage</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Warehousing and Storage</td>
<td>513,600</td>
<td>660,300</td>
<td>146,700</td>
<td>28.6%</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Sales representatives, wholesale and manufacturing, except technical</td>
<td>6,137</td>
<td>9,165</td>
<td>3,028</td>
<td>49.3%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>and scientific products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Production, planning, and expediting clerks</td>
<td>4,398</td>
<td>6,569</td>
<td>2,171</td>
<td>49.3%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>3 First-line supervisors/managers of helpers, laborers, and material</td>
<td>9,191</td>
<td>11,681</td>
<td>2,490</td>
<td>27.1%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>movers, hand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Customer service representatives</td>
<td>9,270</td>
<td>13,844</td>
<td>4,575</td>
<td>49.3%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>5 Janitors and cleaners, except maids and housekeeping cleaners</td>
<td>4,965</td>
<td>7,043</td>
<td>2,078</td>
<td>41.9%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>6 Laborers and freight, stock, and material movers, hand</td>
<td>97,708</td>
<td>112,041</td>
<td>14,332</td>
<td>14.7%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>7 General and operations managers</td>
<td>7,865</td>
<td>11,418</td>
<td>3,553</td>
<td>45.2%</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>8 Stock clerks and order fillers</td>
<td>48,605</td>
<td>55,444</td>
<td>6,839</td>
<td>14.1%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>9 Truck drivers, heavy and tractor-trailer</td>
<td>20,517</td>
<td>27,448</td>
<td>6,931</td>
<td>33.8%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>10 Packers and packagers, hand</td>
<td>21,395</td>
<td>28,109</td>
<td>6,714</td>
<td>31.4%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>11 Office clerks, general</td>
<td>9,493</td>
<td>12,348</td>
<td>2,854</td>
<td>30.1%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>12 All other business operations specialists</td>
<td>3,198</td>
<td>5,214</td>
<td>2,016</td>
<td>63.0%</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>13 Truck drivers, light or delivery services</td>
<td>9,880</td>
<td>13,218</td>
<td>3,338</td>
<td>33.8%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td></td>
<td>Occupation Description</td>
<td>Current</td>
<td>Previous</td>
<td>Change</td>
<td>Increase</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>----------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>14</td>
<td>Maintenance and repair workers, general</td>
<td>6,632</td>
<td>9,905</td>
<td>3,273</td>
<td>49.3%</td>
</tr>
<tr>
<td>15</td>
<td>Industrial truck and tractor operators</td>
<td>64,287</td>
<td>79,984</td>
<td>15,697</td>
<td>24.4%</td>
</tr>
<tr>
<td>16</td>
<td>First-line supervisors/managers of transportation and material-moving machine</td>
<td>6,761</td>
<td>8,593</td>
<td>1,832</td>
<td>27.1%</td>
</tr>
<tr>
<td>17</td>
<td>First-line supervisors/managers of office and administrative support workers</td>
<td>7,573</td>
<td>9,699</td>
<td>2,126</td>
<td>28.1%</td>
</tr>
<tr>
<td>18</td>
<td>Transportation, storage, and distribution managers</td>
<td>4,074</td>
<td>6,086</td>
<td>2,011</td>
<td>49.4%</td>
</tr>
<tr>
<td>19</td>
<td>Shipping, receiving, and traffic clerks</td>
<td>29,037</td>
<td>34,867</td>
<td>5,830</td>
<td>20.1%</td>
</tr>
<tr>
<td>20</td>
<td>Inspectors, testers, sorters, samplers, and weighers</td>
<td>5,117</td>
<td>7,814</td>
<td>2,697</td>
<td>52.7%</td>
</tr>
</tbody>
</table>
Part 6. Truck Transportation Occupations

**Highlights:**

- Truck transportation employed around 1.34 million workers in 2002. With a ten-year growth rate of 21 percent, this industry is expected to add 274,800 jobs by 2012.

- Heavy and tractor-trailer truck drivers had the largest employment in 2002, and are expected to have the largest employment in 2012.

- Four of the ten fastest growing occupations are computer-related. Other fast growing occupations include reservation and ticket agents, hazardous materials workers, public relations specialists, business operations specialists, and sales managers.

- Over sixty percent of new jobs in truck transportation are expected to be for heavy and tractor-trailer truck drivers. These jobs require moderate-term on-the-job training. Of the remaining nine occupations in the top ten for new jobs, five require short- to moderate-term on-the-job training and provide low earnings; one requires a postsecondary vocational award; and three are management positions which require prior work experience.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death, truck drivers, laborers, and bus and truck mechanics top the list of occupational employment between 2002 and 2012. This reflects the need of moderate-term OJT training for at least 250,000 heavy and tractor-trailer truck drivers, and short-term OJT training for 39,000 laborers and 25,000 light truck drivers over the ten year period. See Table 6-5 A for details.

- Supervisors of mechanics, customer service representatives, and bus and truck mechanics have the highest rate of increased training needs, while comparing the net new hires between 2002 and 2012 with the actual 2002 employment.
### Table 6-1. Truck Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment 2002</th>
<th>Employment 2012</th>
<th>Employment Change</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Truck Transportation</td>
<td>1,339,200</td>
<td>1,614,000</td>
<td>274,800</td>
<td>20.5%</td>
<td></td>
</tr>
<tr>
<td>1  Truck drivers, heavy and tractor-trailer</td>
<td>700,730</td>
<td>871,450</td>
<td>170,720</td>
<td>24.4%</td>
<td></td>
</tr>
<tr>
<td>2  Laborers and freight, stock, and material movers, hand</td>
<td>97,779</td>
<td>99,901</td>
<td>2,122</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>3  Truck drivers, light or delivery services</td>
<td>78,380</td>
<td>97,446</td>
<td>19,065</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td>4  Bus and truck mechanics and diesel engine specialists</td>
<td>44,535</td>
<td>49,569</td>
<td>5,033</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>5  Office clerks, general</td>
<td>33,626</td>
<td>37,661</td>
<td>4,035</td>
<td>12.0%</td>
<td></td>
</tr>
<tr>
<td>6  Dispatchers, except police, fire, and ambulance</td>
<td>32,247</td>
<td>37,538</td>
<td>5,290</td>
<td>16.4%</td>
<td></td>
</tr>
<tr>
<td>7  Industrial truck and tractor operators</td>
<td>28,345</td>
<td>32,944</td>
<td>4,599</td>
<td>16.2%</td>
<td></td>
</tr>
<tr>
<td>8  First-line supervisors/managers of transportation and</td>
<td>26,554</td>
<td>31,367</td>
<td>4,813</td>
<td>18.1%</td>
<td></td>
</tr>
<tr>
<td>material-moving machine and vehicle operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9  General and operations managers</td>
<td>22,720</td>
<td>28,409</td>
<td>5,689</td>
<td>25.0%</td>
<td></td>
</tr>
<tr>
<td>10 Bookkeeping, accounting, and auditing clerks</td>
<td>16,634</td>
<td>18,259</td>
<td>1,625</td>
<td>9.8%</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6-2. Truck Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment 2002</th>
<th>Employment 2012</th>
<th>Employment Change</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Truck Transportation</td>
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<td>1  Truck drivers, heavy and tractor-trailer</td>
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<td>170,720</td>
<td>24.4%</td>
<td></td>
</tr>
<tr>
<td>2  Laborers and freight, stock, and material movers, hand</td>
<td>97,779</td>
<td>99,901</td>
<td>2,122</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>3  Truck drivers, light or delivery services</td>
<td>78,380</td>
<td>97,446</td>
<td>19,065</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td>4  Bus and truck mechanics and diesel engine specialists</td>
<td>44,535</td>
<td>49,569</td>
<td>5,033</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>5  Office clerks, general</td>
<td>33,626</td>
<td>37,661</td>
<td>4,035</td>
<td>12.0%</td>
<td></td>
</tr>
<tr>
<td>6  Dispatchers, except police, fire, and ambulance</td>
<td>32,247</td>
<td>37,538</td>
<td>5,290</td>
<td>16.4%</td>
<td></td>
</tr>
<tr>
<td>7  Industrial truck and tractor operators</td>
<td>28,345</td>
<td>32,944</td>
<td>4,599</td>
<td>16.2%</td>
<td></td>
</tr>
<tr>
<td>8  First-line supervisors/managers of transportation and</td>
<td>26,554</td>
<td>31,367</td>
<td>4,813</td>
<td>18.1%</td>
<td></td>
</tr>
<tr>
<td>material-moving machine and vehicle operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9  General and operations managers</td>
<td>22,720</td>
<td>28,409</td>
<td>5,689</td>
<td>25.0%</td>
<td></td>
</tr>
<tr>
<td>10 Customer service representatives</td>
<td>14,467</td>
<td>18,599</td>
<td>4,132</td>
<td>28.6%</td>
<td></td>
</tr>
</tbody>
</table>
Table 6-3. Truck Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Truck Transportation</td>
<td>1,339,200</td>
<td>1,614,000</td>
</tr>
<tr>
<td>1 Database administrators</td>
<td>208</td>
<td>306</td>
</tr>
<tr>
<td>2 Computer systems analysts</td>
<td>355</td>
<td>519</td>
</tr>
<tr>
<td>3 Reservation and transportation ticket agents and travel clerks</td>
<td>421</td>
<td>602</td>
</tr>
<tr>
<td>4 Hazardous materials removal workers</td>
<td>208</td>
<td>295</td>
</tr>
<tr>
<td>5 Public relations specialists</td>
<td>108</td>
<td>152</td>
</tr>
<tr>
<td>6 All other business operations specialists</td>
<td>2,529</td>
<td>3,549</td>
</tr>
<tr>
<td>7 Computer and information systems managers</td>
<td>668</td>
<td>933</td>
</tr>
<tr>
<td>8 All other computer specialists</td>
<td>415</td>
<td>580</td>
</tr>
<tr>
<td>9 Sales managers</td>
<td>2,661</td>
<td>3,709</td>
</tr>
<tr>
<td>10 Compensation, benefits, and job analysis specialists</td>
<td>316</td>
<td>440</td>
</tr>
</tbody>
</table>

Table 6-4. Truck Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations</td>
<td>1,339,200</td>
<td>1,614,000</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>700,730</td>
<td>871,450</td>
</tr>
<tr>
<td>2 Truck drivers, light or delivery services</td>
<td>78,380</td>
<td>97,446</td>
</tr>
<tr>
<td>3 General and operations managers</td>
<td>22,720</td>
<td>28,409</td>
</tr>
<tr>
<td>4 Dispatchers, except police, fire, and ambulance</td>
<td>32,247</td>
<td>37,538</td>
</tr>
<tr>
<td>5 Bus and truck mechanics and diesel engine specialists</td>
<td>44,535</td>
<td>49,569</td>
</tr>
<tr>
<td>6 First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>26,554</td>
<td>31,367</td>
</tr>
<tr>
<td>7 Industrial truck and tractor operators</td>
<td>28,345</td>
<td>32,944</td>
</tr>
<tr>
<td>8 Customer service representatives</td>
<td>14,467</td>
<td>18,599</td>
</tr>
<tr>
<td>9 Office clerks, general</td>
<td>33,626</td>
<td>37,661</td>
</tr>
<tr>
<td>10 Transportation, storage, and distribution managers</td>
<td>10,848</td>
<td>13,951</td>
</tr>
</tbody>
</table>
Table 6-5. Employment, Wages and Education/Training Requirements -
Truck Transportation Occupations with Most Jobs in 2002 and 2012,
and Occupations with Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in truck transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Truck Transportation</td>
<td>1,339,200</td>
<td>1,614,000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1. Truck drivers, heavy and tractor-trailer</td>
<td>700,730</td>
<td>871,450</td>
<td>170,720</td>
<td>1,186,000</td>
<td>35.7% Moderate-term on-the-job training</td>
</tr>
<tr>
<td>2. Laborers and freight, stock, and material movers, hand</td>
<td>97,779</td>
<td>99,901</td>
<td>2,122</td>
<td>230,000</td>
<td>39.9% Short-term on-the-job training</td>
</tr>
<tr>
<td>3. Truck drivers, light or delivery services</td>
<td>78,380</td>
<td>97,446</td>
<td>19,065</td>
<td>168,000</td>
<td>31.9% Short-term on-the-job training</td>
</tr>
<tr>
<td>4. Bus and truck mechanics and diesel engine specialists</td>
<td>44,535</td>
<td>49,569</td>
<td>5,033</td>
<td>47,000</td>
<td>40.4% Postsecondary vocational award</td>
</tr>
<tr>
<td>5. Dispatchers, except police, fire, and ambulance</td>
<td>32,247</td>
<td>37,538</td>
<td>5,290</td>
<td>53,000</td>
<td>34.1% Moderate-term on-the-job training</td>
</tr>
<tr>
<td>6. Office clerks, general</td>
<td>33,626</td>
<td>37,661</td>
<td>4,035</td>
<td>62,000</td>
<td>32.7% Short-term on-the-job training</td>
</tr>
<tr>
<td>7. First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>26,554</td>
<td>31,367</td>
<td>4,813</td>
<td>29,000</td>
<td>33.9% Work experience in a related occupation</td>
</tr>
<tr>
<td>8. Industrial truck and tractor operators</td>
<td>28,345</td>
<td>32,944</td>
<td>4,599</td>
<td>45,000</td>
<td>31.8% Short-term on-the-job training</td>
</tr>
<tr>
<td>9. General and operations managers</td>
<td>22,720</td>
<td>28,409</td>
<td>5,689</td>
<td>29,000</td>
<td>35.2% Degree plus work experience</td>
</tr>
</tbody>
</table>

1 **Total New Hires** refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. **Total New Hires** represents the overall recruitment needs for a particular occupation.

2 **Net New Hires** refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. **Net New Hires** reflects the minimum training needs for a particular occupation.

3 **Percent of Net New Hires** is calculated by comparing the Net New Hires against the 2002 actual employment.

4/15/2004 Page 39
<table>
<thead>
<tr>
<th></th>
<th>Occupation</th>
<th>Current Year</th>
<th>Previous Year</th>
<th>Change</th>
<th>Change %</th>
<th>Min</th>
<th>Max</th>
<th>Required Education</th>
<th>Training Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Customer service representatives</td>
<td>14,467</td>
<td>18,599</td>
<td>4,132</td>
<td>28.6%</td>
<td>6,000</td>
<td>41.5%</td>
<td>Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Transportation, storage, and distribution managers</td>
<td>10,848</td>
<td>13,951</td>
<td>3,103</td>
<td>28.6%</td>
<td>4,000</td>
<td>36.9%</td>
<td>Work experience in a related occupation</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>All other sales and related workers</td>
<td>9,951</td>
<td>12,799</td>
<td>2,848</td>
<td>28.6%</td>
<td>4,000</td>
<td>40.2%</td>
<td>Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>First-line supervisors/managers of helpers, laborers, and material movers, hand</td>
<td>10,373</td>
<td>12,255</td>
<td>1,882</td>
<td>18.1%</td>
<td>4,000</td>
<td>38.6%</td>
<td>Work experience in a related occupation</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>16,634</td>
<td>18,259</td>
<td>1,625</td>
<td>9.8%</td>
<td>4,000</td>
<td>24.0%</td>
<td>Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Packers and packagers, hand</td>
<td>9,370</td>
<td>11,742</td>
<td>2,372</td>
<td>25.3%</td>
<td>3,000</td>
<td>32.0%</td>
<td>Short-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Billing and posting clerks and machine operators</td>
<td>12,441</td>
<td>14,041</td>
<td>1,600</td>
<td>12.9%</td>
<td>3,000</td>
<td>24.1%</td>
<td>Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>First-line supervisors/managers of office and administrative support workers</td>
<td>10,935</td>
<td>12,061</td>
<td>1,126</td>
<td>10.3%</td>
<td>3,000</td>
<td>27.4%</td>
<td>Work experience in a related occupation</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Maintenance and repair workers, general</td>
<td>6,606</td>
<td>8,496</td>
<td>1,890</td>
<td>28.6%</td>
<td>2,000</td>
<td>30.3%</td>
<td>Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Accountants and auditors</td>
<td>5,156</td>
<td>6,600</td>
<td>1,443</td>
<td>28.0%</td>
<td>2,000</td>
<td>38.8%</td>
<td>Bachelor's degree</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>First-line supervisors/managers of mechanics, installers, and repairers</td>
<td>4,469</td>
<td>5,746</td>
<td>1,277</td>
<td>28.6%</td>
<td>2,000</td>
<td>44.8%</td>
<td>Work experience in a related occupation</td>
<td></td>
</tr>
</tbody>
</table>
B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in truck transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
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<td>5,746</td>
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</tr>
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<td>5,033</td>
<td>11.3%</td>
<td>Postsecondary vocational award</td>
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<td>All other sales and related workers</td>
<td>9,951</td>
<td>12,799</td>
<td>2,848</td>
<td>28.6%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Laborers and freight, stock, and material movers, hand</td>
<td>97,779</td>
<td>99,901</td>
<td>2,122</td>
<td>2.2%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>5,156</td>
<td>6,600</td>
<td>1,443</td>
<td>28.0%</td>
<td>Bachelor's degree</td>
</tr>
<tr>
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<td>10,373</td>
<td>12,255</td>
<td>1,882</td>
<td>18.1%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Transportation, storage, and distribution managers</td>
<td>10,848</td>
<td>13,951</td>
<td>3,103</td>
<td>28.6%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>700,730</td>
<td>871,450</td>
<td>170,720</td>
<td>24.4%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>General and operations managers</td>
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<td>37,661</td>
<td>4,035</td>
<td>12.0%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>14</td>
<td>Packers and packagers, hand</td>
<td>9,370</td>
<td>11,742</td>
<td>2,372</td>
<td>25.3%</td>
</tr>
<tr>
<td>15</td>
<td>Truck drivers, light or delivery services</td>
<td>78,380</td>
<td>97,446</td>
<td>19,065</td>
<td>24.3%</td>
</tr>
<tr>
<td>16</td>
<td>Industrial truck and tractor operators</td>
<td>28,345</td>
<td>32,944</td>
<td>4,599</td>
<td>16.2%</td>
</tr>
<tr>
<td>17</td>
<td>Maintenance and repair workers, general</td>
<td>6,606</td>
<td>8,496</td>
<td>1,890</td>
<td>28.6%</td>
</tr>
<tr>
<td>18</td>
<td>First-line supervisors/managers of office and</td>
<td>10,935</td>
<td>12,061</td>
<td>1,126</td>
<td>10.3%</td>
</tr>
<tr>
<td></td>
<td>administrative support workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Billing and posting clerks and machine operators</td>
<td>12,441</td>
<td>14,041</td>
<td>1,600</td>
<td>12.9%</td>
</tr>
<tr>
<td>20</td>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>16,634</td>
<td>18,259</td>
<td>1,625</td>
<td>9.8%</td>
</tr>
</tbody>
</table>
Part 7. Scenic and Sightseeing Transportation Occupations

Highlights:

- The scenic and sightseeing transportation industry employed a total of 25,900 wage and salary workers in 2002. Employment in all occupations in this industry is projected to grow at a rate of 15 percent between 2002 and 2012, adding 3,900 jobs.

- Transit and intercity bus drivers have the largest employment in both 2002 and projected 2012.

- Job growth in this sector comes from many varied occupations. The fastest-growing occupation is aircraft mechanic with a job growth rate of 41 percent. Other fast-growing occupations include reservation/ticket agent, heavy truck driver, and mechanic supervisor.

- The occupation providing the most new jobs is transit and intercity bus driver, accounting for 10 percent of new jobs. This occupation and six others in the top ten occupations for new jobs require only short- to moderate-term OJT training.

- Taking into consideration both new hires due to net growth and replacement of exits due to retirement and death, bus drivers, captains and mates of water vessels, and sailors top the list of occupational employment between 2002 and 2012. This reflects the need of moderate-term OJT training for at least 1,000 bus drivers and short-term OJT training for 621 sailors over the ten year period. See Table 7-5 A for details.

- Cashiers, food preparation and serving workers, and waiters and waitresses have the highest rate of increased training needs. Most of the jobs on the top of this list require only short-term OJT training. See Table 7-5 B for details.
## Table 7-1. Scenic and Sightseeing Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
</tr>
<tr>
<td>1 Bus drivers, transit and intercity</td>
<td>2,390</td>
<td>2,780</td>
</tr>
<tr>
<td>2 Captains, mates, and pilots of water vessels</td>
<td>2,163</td>
<td>2,345</td>
</tr>
<tr>
<td>3 Sailors and marine oilers</td>
<td>1,666</td>
<td>1,887</td>
</tr>
<tr>
<td>4 Tour guides and escorts</td>
<td>1,596</td>
<td>1,930</td>
</tr>
<tr>
<td>5 Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
</tr>
<tr>
<td>6 Transportation attendants, except flight attendants and baggage porters</td>
<td>872</td>
<td>1,023</td>
</tr>
<tr>
<td>7 Combined food preparation and serving workers, including fast food</td>
<td>870</td>
<td>978</td>
</tr>
<tr>
<td>8 Taxi drivers and chauffeurs</td>
<td>746</td>
<td>810</td>
</tr>
<tr>
<td>9 Cashiers, except gaming</td>
<td>631</td>
<td>706</td>
</tr>
<tr>
<td>10 Office clerks, general</td>
<td>602</td>
<td>627</td>
</tr>
</tbody>
</table>

## Table 7-2. Scenic and Sightseeing Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
</tr>
<tr>
<td>1 Bus drivers, transit and intercity</td>
<td>2,390</td>
<td>2,780</td>
</tr>
<tr>
<td>2 Captains, mates, and pilots of water vessels</td>
<td>2,163</td>
<td>2,345</td>
</tr>
<tr>
<td>3 Tour guides and escorts</td>
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<td>1,930</td>
</tr>
<tr>
<td>4 Sailors and marine oilers</td>
<td>1,666</td>
<td>1,887</td>
</tr>
<tr>
<td>5 Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
</tr>
<tr>
<td>6 Transportation attendants, except flight attendants and baggage porters</td>
<td>872</td>
<td>1,023</td>
</tr>
<tr>
<td>7 Combined food preparation and serving workers, including fast food</td>
<td>870</td>
<td>978</td>
</tr>
<tr>
<td>8 Taxi drivers and chauffeurs</td>
<td>746</td>
<td>810</td>
</tr>
<tr>
<td>9 Cashiers, except gaming</td>
<td>631</td>
<td>706</td>
</tr>
<tr>
<td>10 Office clerks, general</td>
<td>602</td>
<td>627</td>
</tr>
</tbody>
</table>
### Table 7-3. Scenic and Sightseeing Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
</tr>
<tr>
<td>1 Aircraft mechanics and service technicians</td>
<td>257</td>
<td>361</td>
</tr>
<tr>
<td>2 Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
</tr>
<tr>
<td>3 Truck drivers, heavy and tractor-trailer</td>
<td>119</td>
<td>158</td>
</tr>
<tr>
<td>4 First-line supervisors/managers of mechanics, installers, and repairers</td>
<td>86</td>
<td>110</td>
</tr>
<tr>
<td>5 Sales managers</td>
<td>72</td>
<td>92</td>
</tr>
<tr>
<td>6 Commercial pilots</td>
<td>387</td>
<td>488</td>
</tr>
<tr>
<td>7 Maintenance and repair workers, general</td>
<td>246</td>
<td>309</td>
</tr>
<tr>
<td>8 Welders, cutters, solderers, and brazers</td>
<td>305</td>
<td>384</td>
</tr>
<tr>
<td>9 All other related transportation workers</td>
<td>184</td>
<td>231</td>
</tr>
<tr>
<td>10 Amusement and recreation attendants</td>
<td>377</td>
<td>472</td>
</tr>
</tbody>
</table>

### Table 7-4. Scenic and Sightseeing Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
</tr>
<tr>
<td>1 Bus drivers, transit and intercity</td>
<td>2,390</td>
<td>2,780</td>
</tr>
<tr>
<td>2 Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
</tr>
<tr>
<td>3 Tour guides and escorts</td>
<td>1,596</td>
<td>1,930</td>
</tr>
<tr>
<td>4 Sailors and marine oilers</td>
<td>1,666</td>
<td>1,887</td>
</tr>
<tr>
<td>5 Captains, mates, and pilots of water vessels</td>
<td>2,163</td>
<td>2,345</td>
</tr>
<tr>
<td>6 Transportation attendants, except flight attendants and baggage porters</td>
<td>872</td>
<td>1,023</td>
</tr>
<tr>
<td>7 Combined food preparation and serving workers, including fast food</td>
<td>870</td>
<td>978</td>
</tr>
<tr>
<td>8 Aircraft mechanics and service technicians</td>
<td>257</td>
<td>361</td>
</tr>
<tr>
<td>9 Commercial pilots</td>
<td>387</td>
<td>488</td>
</tr>
<tr>
<td>10 Amusement and recreation attendants</td>
<td>377</td>
<td>472</td>
</tr>
</tbody>
</table>
Table 7-5. Employment, Wages and Education/Training Requirements –
Scenic and Sightseeing Transportation Occupations with the Most Jobs in 2002 and 2012,
and Occupations with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in scenic/sightseeing transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings¹</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Bus drivers, transit and intercity</td>
<td>2,390</td>
<td>2,780</td>
<td>4,000</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Captains, mates, and pilots of water vessels</td>
<td>2,163</td>
<td>2,345</td>
<td>3,000</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Sailors and marine oilers</td>
<td>1,666</td>
<td>1,887</td>
<td>2,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Combined food preparation and serving workers, including fast food</td>
<td>870</td>
<td>978</td>
<td>3,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Tour guides and escorts</td>
<td>1,596</td>
<td>1,930</td>
<td>3,960</td>
<td>Moderate-term on-the-job training</td>
</tr>
</tbody>
</table>

¹ The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:

\[ \text{Total job openings of an occupation in a particular industry/sector} = (2002-2012 \text{ Economy-wide total job openings for the occupation}) \times (2002 \text{ Percentage distribution of industry occupational employment}). \]

For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (≈ 630,000 \times 44.72%). The validity of this measure needs further scrutiny.

2 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

3 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

4 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th></th>
<th>Occupation</th>
<th>Mean Years of Schooling</th>
<th>Mean Years of On-the-Job Training</th>
<th>Mean Earnings</th>
<th>Mean on-the-Job Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Cashiers, except gaming</td>
<td>631</td>
<td>706</td>
<td>75</td>
<td>11.8%</td>
</tr>
<tr>
<td>7</td>
<td>Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
<td>365</td>
<td>35.2%</td>
</tr>
<tr>
<td>8</td>
<td>Transportation attendants, except flight attendants and baggage porters</td>
<td>872</td>
<td>1,023</td>
<td>150</td>
<td>17.2%</td>
</tr>
<tr>
<td>9</td>
<td>Waiters and waitresses</td>
<td>514</td>
<td>594</td>
<td>80</td>
<td>15.5%</td>
</tr>
<tr>
<td>10</td>
<td>Food preparation workers</td>
<td>452</td>
<td>508</td>
<td>56</td>
<td>12.4%</td>
</tr>
<tr>
<td>11</td>
<td>Taxi drivers and chauffeurs</td>
<td>746</td>
<td>810</td>
<td>64</td>
<td>8.6%</td>
</tr>
<tr>
<td>12</td>
<td>Amusement and recreation attendants</td>
<td>377</td>
<td>472</td>
<td>95</td>
<td>25.1%</td>
</tr>
<tr>
<td>13</td>
<td>Commercial pilots</td>
<td>387</td>
<td>488</td>
<td>101</td>
<td>26.1%</td>
</tr>
<tr>
<td>14</td>
<td>General and operations managers</td>
<td>501</td>
<td>589</td>
<td>88</td>
<td>17.6%</td>
</tr>
<tr>
<td>15</td>
<td>Welders, cutters, solderers, and brazers</td>
<td>305</td>
<td>384</td>
<td>79</td>
<td>25.8%</td>
</tr>
<tr>
<td>16</td>
<td>Aircraft mechanics and service technicians</td>
<td>257</td>
<td>361</td>
<td>105</td>
<td>40.7%</td>
</tr>
<tr>
<td>17</td>
<td>All other sales and related workers</td>
<td>254</td>
<td>303</td>
<td>49</td>
<td>19.4%</td>
</tr>
<tr>
<td>18</td>
<td>Maintenance and repair workers, general</td>
<td>246</td>
<td>309</td>
<td>64</td>
<td>25.9%</td>
</tr>
<tr>
<td>19</td>
<td>All other related transportation workers</td>
<td>184</td>
<td>231</td>
<td>47</td>
<td>25.6%</td>
</tr>
<tr>
<td>20</td>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>119</td>
<td>158</td>
<td>39</td>
<td>32.3%</td>
</tr>
</tbody>
</table>
### B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Scenic and Sightseeing Transportation</td>
<td>25,900</td>
<td>29,800</td>
<td>3,900</td>
<td>15.1%</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Cashiers, except gaming</td>
<td>631</td>
<td>706</td>
<td>75</td>
<td>11.8%</td>
<td>2,000</td>
</tr>
<tr>
<td>2 Combined food preparation and serving workers, including fast food</td>
<td>870</td>
<td>978</td>
<td>109</td>
<td>12.5%</td>
<td>3,000</td>
</tr>
<tr>
<td>3 Waiters and waitresses</td>
<td>514</td>
<td>594</td>
<td>80</td>
<td>15.5%</td>
<td>1,000</td>
</tr>
<tr>
<td>4 Amusement and recreation attendants</td>
<td>377</td>
<td>472</td>
<td>95</td>
<td>25.1%</td>
<td>1,000</td>
</tr>
<tr>
<td>5 Truck drivers, heavy and tractor-trailer</td>
<td>119</td>
<td>158</td>
<td>39</td>
<td>32.3%</td>
<td>299</td>
</tr>
<tr>
<td>6 Food preparation workers</td>
<td>452</td>
<td>508</td>
<td>56</td>
<td>12.4%</td>
<td>1,000</td>
</tr>
<tr>
<td>7 All other related transportation workers</td>
<td>184</td>
<td>231</td>
<td>47</td>
<td>25.6%</td>
<td>270</td>
</tr>
<tr>
<td>8 Commercial pilots</td>
<td>387</td>
<td>488</td>
<td>101</td>
<td>26.1%</td>
<td>368</td>
</tr>
<tr>
<td>9 Welders, cutters, solderers, and brazers</td>
<td>305</td>
<td>384</td>
<td>79</td>
<td>25.8%</td>
<td>568</td>
</tr>
<tr>
<td>10 Bus drivers, transit and intercity</td>
<td>2,390</td>
<td>2,780</td>
<td>390</td>
<td>16.3%</td>
<td>4,000</td>
</tr>
<tr>
<td>11 Reservation and transportation ticket agents and travel clerks</td>
<td>1,038</td>
<td>1,403</td>
<td>365</td>
<td>35.2%</td>
<td>2,000</td>
</tr>
<tr>
<td>12 Captains, mates, and pilots of water vessels</td>
<td>2,163</td>
<td>2,345</td>
<td>182</td>
<td>8.4%</td>
<td>3,000</td>
</tr>
<tr>
<td>13 All other sales and related workers</td>
<td>254</td>
<td>303</td>
<td>49</td>
<td>19.4%</td>
<td>440</td>
</tr>
<tr>
<td>14 Aircraft mechanics and service technicians</td>
<td>257</td>
<td>361</td>
<td>105</td>
<td>40.7%</td>
<td>240</td>
</tr>
<tr>
<td>15 Transportation attendants, except flight attendants and baggage porters</td>
<td>872</td>
<td>1,023</td>
<td>150</td>
<td>17.2%</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
<td>Current</td>
<td>Previous</td>
<td>New Entrants</td>
<td>Duration</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------</td>
<td>---------</td>
<td>----------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>16</td>
<td>Sailors and marine oilers</td>
<td>1,666</td>
<td>1,887</td>
<td>221</td>
<td>13.2%</td>
</tr>
<tr>
<td>17</td>
<td>Maintenance and repair workers, general</td>
<td>246</td>
<td>309</td>
<td>64</td>
<td>25.9%</td>
</tr>
<tr>
<td>18</td>
<td>General and operations managers</td>
<td>501</td>
<td>589</td>
<td>88</td>
<td>17.6%</td>
</tr>
<tr>
<td>19</td>
<td>Taxi drivers and chauffeurs</td>
<td>746</td>
<td>810</td>
<td>64</td>
<td>8.6%</td>
</tr>
<tr>
<td>20</td>
<td>Tour guides and escorts</td>
<td>1,596</td>
<td>1,930</td>
<td>333</td>
<td>20.9%</td>
</tr>
</tbody>
</table>
Part 8. Transportation Support Activities Occupations

Highlights:

- In 2002, industries providing support activities for air, water, rail and freight transportation employed 526,700 workers. Employment in all occupations in this sector is projected to grow at a rate of 18 percent between 2002 and 2012, adding 95,800 jobs.

- Laborers and freight, stock, and material movers have the largest employment in both 2002 and projected 2012.

- Four of the ten fastest-growing occupations in transportation support activities are computer-related. Other fast-growing occupations include business operations specialists, control and valve installers/repairers, rail car repairers, sales supervisors and managers, and explosives workers.

- Over 20 percent of new jobs in this sector will be for truck drivers and operators. Eight of the top ten occupations in job creation require only short- to moderate-term OJT training.

- Occupations with the most new hires due to net growth and replacement of workers leaving the occupation include heavy and tractor-trailer truck drivers, aircraft mechanics, and cargo and freight agents. Most of these new hires will require at least moderate-term OJT training. See Table 8-5 A for details.

- Occupations with the highest rate of increased training needs are cashiers, sales representatives, and all other business operations specialists. For instance, the number of workers entering the occupation of cashiers for the first time is more than half the number of the 2002 actual employment in this occupation. See Table 8-5 B for details.
Table 8-1. Transportation Support Activities Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700</td>
<td>622,500 95,800 18.2%</td>
</tr>
<tr>
<td>1 Laborers and freight, stock, and material movers, hand</td>
<td>54,069</td>
<td>55,158 1,089 2.0%</td>
</tr>
<tr>
<td>2 Truck drivers, heavy and tractor-trailer</td>
<td>34,323</td>
<td>47,073 12,750 37.1%</td>
</tr>
<tr>
<td>3 Cargo and freight agents</td>
<td>26,699</td>
<td>30,320 3,621 13.6%</td>
</tr>
<tr>
<td>4 Aircraft mechanics and service technicians</td>
<td>25,530</td>
<td>33,211 7,682 30.1%</td>
</tr>
<tr>
<td>5 Truck drivers, light or delivery services</td>
<td>18,475</td>
<td>23,924 5,450 29.5%</td>
</tr>
<tr>
<td>6 Industrial truck and tractor operators</td>
<td>15,323</td>
<td>17,893 2,570 16.8%</td>
</tr>
<tr>
<td>7 Office clerks, general</td>
<td>15,253</td>
<td>17,837 2,584 16.9%</td>
</tr>
<tr>
<td>8 General and operations managers</td>
<td>14,011</td>
<td>17,696 3,685 26.3%</td>
</tr>
<tr>
<td>9 First-line supervisors/managers of office and administrative support workers</td>
<td>11,405 13,076</td>
<td>1,671 14.6%</td>
</tr>
<tr>
<td>10 Shipping, receiving, and traffic clerks</td>
<td>10,690</td>
<td>12,027 1,337 12.5%</td>
</tr>
</tbody>
</table>

Table 8-2. Transportation Support Activities Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700</td>
<td>622,500 95,800 18.2%</td>
</tr>
<tr>
<td>1 Laborers and freight, stock, and material movers, hand</td>
<td>54,069</td>
<td>55,158 1,089 2.0%</td>
</tr>
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<td>2 Truck drivers, heavy and tractor-trailer</td>
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<td>25,530</td>
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<td>15,253</td>
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<tr>
<td>8 General and operations managers</td>
<td>14,011</td>
<td>17,696 3,685 26.3%</td>
</tr>
<tr>
<td>9 Customer service representatives</td>
<td>10,350</td>
<td>13,809 3,458 33.4%</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of office and administrative support workers</td>
<td>11,405 13,076</td>
<td>1,671 14.6%</td>
</tr>
</tbody>
</table>
Table 8-3. Transportation Support Activities Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700</td>
<td>622,500</td>
</tr>
<tr>
<td>1 Network systems and data communications analysts</td>
<td>134</td>
<td>215</td>
</tr>
<tr>
<td>2 All other business operations specialists</td>
<td>3,748</td>
<td>5,532</td>
</tr>
<tr>
<td>3 Control and valve installers and repairers, except mechanical door</td>
<td>163</td>
<td>239</td>
</tr>
<tr>
<td>4 Database administrators</td>
<td>285</td>
<td>416</td>
</tr>
<tr>
<td>5 Computer systems analysts</td>
<td>100</td>
<td>145</td>
</tr>
<tr>
<td>6 Rail car repairers</td>
<td>2,982</td>
<td>4,320</td>
</tr>
<tr>
<td>7 Sales managers</td>
<td>1,279</td>
<td>1,840</td>
</tr>
<tr>
<td>8 Explosives workers, ordnance handling experts, and blasters</td>
<td>67</td>
<td>95</td>
</tr>
<tr>
<td>9 Computer and information systems managers</td>
<td>582</td>
<td>826</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of non-retail sales workers</td>
<td>1,434</td>
<td>2,033</td>
</tr>
</tbody>
</table>

Table 8-4. Transportation Support Activities with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700</td>
<td>622,500</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>34,323</td>
<td>47,073</td>
</tr>
<tr>
<td>2 Aircraft mechanics and service technicians</td>
<td>25,530</td>
<td>33,211</td>
</tr>
<tr>
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<td>18,475</td>
<td>23,924</td>
</tr>
<tr>
<td>4 General and operations managers</td>
<td>14,011</td>
<td>17,696</td>
</tr>
<tr>
<td>5 Cargo and freight agents</td>
<td>26,699</td>
<td>30,320</td>
</tr>
<tr>
<td>6 Customer service representatives</td>
<td>10,350</td>
<td>13,809</td>
</tr>
<tr>
<td>7 Packers and packagers, hand</td>
<td>9,430</td>
<td>12,821</td>
</tr>
<tr>
<td>8 Office clerks, general</td>
<td>15,253</td>
<td>17,837</td>
</tr>
<tr>
<td>9 Industrial truck and tractor operators</td>
<td>15,323</td>
<td>17,893</td>
</tr>
<tr>
<td>10 Dispatchers, except police, fire, and ambulance</td>
<td>10,332</td>
<td>12,540</td>
</tr>
</tbody>
</table>
Table 8-5. Employment, Wages and Education/Training Requirements – Transportation Support Activities Occupations with Most Jobs in 2002 and 2012, and Occupations with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in support activities</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/ training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700 622,500</td>
<td>95,800 18.2%</td>
<td>N/A N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Truck drivers, heavy and tractor-trailer</td>
<td>34,323 47,073</td>
<td>12,750 37.1%</td>
<td>58,000 12,000</td>
<td>35.0%</td>
<td>33,210</td>
</tr>
<tr>
<td>2 Aircraft mechanics and service technicians</td>
<td>25,530 33,211</td>
<td>7,682 30.1%</td>
<td>23,000 10,000</td>
<td>39.2%</td>
<td>43,070</td>
</tr>
<tr>
<td>3 Cargo and freight agents</td>
<td>26,699 30,320</td>
<td>3,621 13.6%</td>
<td>36,000 9,000</td>
<td>33.7%</td>
<td>31,410</td>
</tr>
<tr>
<td>4 Truck drivers, light or delivery services</td>
<td>18,475 23,924</td>
<td>5,450 29.5%</td>
<td>40,000 6,000</td>
<td>32.5%</td>
<td>23,870</td>
</tr>
<tr>
<td>5 General and operations managers</td>
<td>14,011 17,696</td>
<td>3,685 26.3%</td>
<td>18,000 5,000</td>
<td>35.7%</td>
<td>68,210</td>
</tr>
<tr>
<td>6 Office clerks, general</td>
<td>15,253 17,837</td>
<td>2,584 16.9%</td>
<td>28,000 5,000</td>
<td>32.8%</td>
<td>22,280</td>
</tr>
<tr>
<td>7 Industrial truck and tractor operators</td>
<td>15,323 17,893</td>
<td>2,570 16.8%</td>
<td>24,000 5,000</td>
<td>32.6%</td>
<td>26,070</td>
</tr>
<tr>
<td>8 Customer service representatives</td>
<td>10,350 13,809</td>
<td>3,458 33.4%</td>
<td>23,000 4,000</td>
<td>38.6%</td>
<td>26,240</td>
</tr>
<tr>
<td>9 Dispatchers, except police, fire, and ambulance</td>
<td>10,332 12,540</td>
<td>2,207 21.4%</td>
<td>17,000 4,000</td>
<td>38.7%</td>
<td>30,280</td>
</tr>
</tbody>
</table>

1 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

2 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

3 Percent of Net New Hires is calculated by comparing the Net New Hires against the 2002 actual employment.
| 10 | Packers and packagers, hand | 9,430 | 12,821 | 3,391 | 36.0% | 20,000 | 3,000 | 31.8% | 16,700 | Short-term on-the-job training |
| 11 | First-line supervisors/managers of office and administrative support workers | 11,405 | 13,076 | 1,671 | 14.6% | 11,000 | 3,000 | 26.3% | 38,820 | Work experience in a related occupation |
| 12 | Cashiers, except gaming | 5,468 | 6,905 | 1,437 | 26.3% | 20,000 | 3,000 | 54.9% | 15,420 | Short-term on-the-job training |
| 13 | Shipping, receiving, and traffic clerks | 10,690 | 12,027 | 1,337 | 12.5% | 20,000 | 3,000 | 28.1% | 23,420 | Short-term on-the-job training |
| 14 | All other sales and related workers | 5,279 | 7,186 | 1,908 | 36.1% | 10,000 | 2,000 | 37.9% | 35,170 | Moderate-term on-the-job training |
| 15 | Reservation and transportation ticket agents and travel clerks | 5,631 | 7,462 | 1,831 | 32.5% | 11,000 | 2,000 | 35.5% | 25,350 | Short-term on-the-job training |
| 16 | All other business operations specialists | 3,748 | 5,532 | 1,784 | 47.6% | 6,000 | 2,000 | 53.4% | 50,680 | Bachelor's degree |
| 17 | Transportation, storage, and distribution managers | 4,680 | 6,259 | 1,578 | 33.7% | 5,000 | 2,000 | 42.7% | 59,660 | Work experience in a related occupation |
| 18 | Sales representatives, wholesale and manufacturing, except technical and scientific products | 3,736 | 5,140 | 1,404 | 37.6% | 4,000 | 2,000 | 53.5% | 42,730 | Moderate-term on-the-job training |
| 19 | Bookkeeping, accounting, and auditing clerks | 10,337 | 11,663 | 1,326 | 12.8% | 14,000 | 2,000 | 19.3% | 27,380 | Moderate-term on-the-job training |
| 20 | Rail car repairers | 2,982 | 4,320 | 1,338 | 44.9% | 2,000 | 0 | 0.0% | 39,060 | Long-term on-the-job training |
## B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in support activities</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Transportation Support Activities</td>
<td>526,700 622,500</td>
<td>95,800 18.2%</td>
<td>N/A N/A</td>
<td>N/A N/A</td>
<td>N/A N/A</td>
</tr>
<tr>
<td>1 Cashiers, except gaming</td>
<td>5,468 6,905</td>
<td>1,437 26.3%</td>
<td>20,000 3,000</td>
<td>54.9%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>2 Sales representatives, wholesale and manufacturing, except technical and scientific products</td>
<td>3,736 5,140</td>
<td>1,404 37.6%</td>
<td>4,000 2,000</td>
<td>53.5%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>3 All other business operations specialists</td>
<td>3,748 5,532</td>
<td>1,784 47.6%</td>
<td>6,000 2,000</td>
<td>53.4%</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>4 Transportation, storage, and distribution managers</td>
<td>4,680 6,259</td>
<td>1,578 33.7%</td>
<td>5,000 2,000</td>
<td>42.7%</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>5 Aircraft mechanics and service technicians</td>
<td>25,530 33,211</td>
<td>7,682 30.1%</td>
<td>23,000 10,000</td>
<td>39.2%</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>6 Dispatchers, except police, fire, and ambulance</td>
<td>10,332 12,540</td>
<td>2,207 21.4%</td>
<td>17,000 4,000</td>
<td>38.7%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>7 Customer service representatives</td>
<td>10,350 13,809</td>
<td>3,458 33.4%</td>
<td>23,000 4,000</td>
<td>38.6%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>8 All other sales and related workers</td>
<td>5,279 7,186</td>
<td>1,908 36.1%</td>
<td>10,000 2,000</td>
<td>37.9%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>9 General and operations managers</td>
<td>14,011 17,696</td>
<td>3,685 26.3%</td>
<td>18,000 5,000</td>
<td>35.7%</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>10 Reservation and transportation ticket agents and travel clerks</td>
<td>5,631 7,462</td>
<td>1,831 32.5%</td>
<td>11,000 2,000</td>
<td>35.5%</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>11 Truck drivers, heavy and tractor-trailer</td>
<td>34,323 47,073</td>
<td>12,750 37.1%</td>
<td>58,000 12,000</td>
<td>35.0%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>12 Cargo and freight agents</td>
<td>26,699 30,320</td>
<td>3,621 13.6%</td>
<td>36,000 9,000</td>
<td>33.7%</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>13</td>
<td>Office clerks, general</td>
<td>15,253</td>
<td>17,837</td>
<td>16.9%</td>
<td>28,000</td>
</tr>
<tr>
<td>14</td>
<td>Industrial truck and tractor operators</td>
<td>15,323</td>
<td>17,893</td>
<td>16.8%</td>
<td>24,000</td>
</tr>
<tr>
<td>15</td>
<td>Truck drivers, light or delivery services</td>
<td>18,475</td>
<td>23,924</td>
<td>29.5%</td>
<td>40,000</td>
</tr>
<tr>
<td>16</td>
<td>Packers and packagers, hand</td>
<td>9,430</td>
<td>12,821</td>
<td>36.0%</td>
<td>20,000</td>
</tr>
<tr>
<td>17</td>
<td>Shipping, receiving, and traffic clerks</td>
<td>10,690</td>
<td>12,027</td>
<td>12.5%</td>
<td>20,000</td>
</tr>
<tr>
<td>18</td>
<td>First-line supervisors/managers of office and administrative support workers</td>
<td>11,405</td>
<td>13,076</td>
<td>14.6%</td>
<td>11,000</td>
</tr>
<tr>
<td>19</td>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>10,337</td>
<td>11,663</td>
<td>12.8%</td>
<td>14,000</td>
</tr>
<tr>
<td>20</td>
<td>Rail car repairers</td>
<td>2,982</td>
<td>4,320</td>
<td>44.9%</td>
<td>2,000</td>
</tr>
</tbody>
</table>
Part 9. Air Transportation Occupations

Highlights:

- Workers in the air transportation industry held 559,300 jobs in 2002. Employment in this industry is projected to grow at a rate of 12 percent between 2002 and 2012, adding 66,900 new jobs.

- Reservation and transportation ticket agents and travel clerks had the largest employment in both 2002 and 2012.

- The fastest growing occupations are diverse, and include recreation attendants, coaches, cartographers, cooks, and network systems analysts. The fastest growing occupations make up a very small part of total employment in the sector; the top ten account for only 1% of new jobs over 2002-12.

- By far, the occupations with the greatest growth are flight attendants, providing 23% of new jobs over the projected period, and airline pilots, providing 18% of new jobs. Other occupations showing significant gains in employment include reservation/ticket agents, customer service representatives, and aircraft mechanics. The majority of new jobs are in occupations requiring postsecondary education, long-term OJT training, and/or prior experience. Jobs with these requirements provide above-average earnings.

- Reservation and ticket agents and travel clerks, airline pilots and flight engineers, and flight attendants will add the most new hires due to net growth and replacement of retired employees and other turnover. This reflects the industry’s need to provide short-term on-the-job training to at least 44,000 new workers as reservation and ticket agents, and long-term on-the-job training to more than 28,000 new flight attendants.

- Occupations with the highest rate of increased training needs compared with the current employment level include accountants and auditors, sales workers, and airline pilots.
Table 9-1. Air Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Air Transportation</td>
<td>559,300</td>
<td>626,200</td>
</tr>
<tr>
<td>1 Reservation and transportation ticket agents and travel clerks</td>
<td>111,283</td>
<td>115,916</td>
</tr>
<tr>
<td>2 Flight attendants</td>
<td>97,257</td>
<td>112,674</td>
</tr>
<tr>
<td>3 Airline pilots, copilots, and flight engineers</td>
<td>66,702</td>
<td>78,990</td>
</tr>
<tr>
<td>4 Aircraft mechanics and service technicians</td>
<td>55,499</td>
<td>59,894</td>
</tr>
<tr>
<td>5 Customer service representatives</td>
<td>28,759</td>
<td>33,300</td>
</tr>
<tr>
<td>6 Baggage porters and bellhops</td>
<td>12,178</td>
<td>13,466</td>
</tr>
<tr>
<td>7 First-line supervisors/managers of office and administrative support workers</td>
<td>10,726</td>
<td>10,789</td>
</tr>
<tr>
<td>8 Laborers and freight, stock, and material movers, hand</td>
<td>9,258</td>
<td>8,904</td>
</tr>
<tr>
<td>9 Cargo and freight agents</td>
<td>7,969</td>
<td>7,961</td>
</tr>
<tr>
<td>10 Commercial pilots</td>
<td>7,082</td>
<td>8,949</td>
</tr>
</tbody>
</table>

Table 9-2. Air Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
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<tr>
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</tr>
<tr>
<td>8 Laborers and freight, stock, and material movers, hand</td>
<td>9,258</td>
<td>8,904</td>
</tr>
<tr>
<td>9 Cargo and freight agents</td>
<td>7,969</td>
<td>7,961</td>
</tr>
<tr>
<td>10 Maintenance and repair workers, general</td>
<td>6,902</td>
<td>8,130</td>
</tr>
</tbody>
</table>
Table 9-3. Air Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Air Transportation</td>
<td>559,300</td>
<td>626,200</td>
</tr>
<tr>
<td>1 Amusement and recreation attendants</td>
<td>174</td>
<td>262</td>
</tr>
<tr>
<td>2 Coaches and scouts</td>
<td>129</td>
<td>192</td>
</tr>
<tr>
<td>3 Cartographers and photogrammetrists</td>
<td>113</td>
<td>168</td>
</tr>
<tr>
<td>4 Cooks, restaurant</td>
<td>91</td>
<td>135</td>
</tr>
<tr>
<td>5 Network systems and data communications analysts</td>
<td>340</td>
<td>502</td>
</tr>
<tr>
<td>6 Emergency medical technicians and paramedics</td>
<td>158</td>
<td>232</td>
</tr>
<tr>
<td>7 Fitness trainers and aerobics instructors</td>
<td>87</td>
<td>128</td>
</tr>
<tr>
<td>8 Pump operators, except wellhead pumpers</td>
<td>55</td>
<td>81</td>
</tr>
<tr>
<td>9 Advertising sales agents</td>
<td>59</td>
<td>86</td>
</tr>
<tr>
<td>10 All other health practitioners and technical workers</td>
<td>210</td>
<td>306</td>
</tr>
</tbody>
</table>

Table 9-4. Air Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Air Transportation</td>
<td>559,300</td>
<td>626,200</td>
</tr>
<tr>
<td>1 Flight attendants</td>
<td>97,257</td>
<td>112,674</td>
</tr>
<tr>
<td>2 Airline pilots, copilots, and flight engineers</td>
<td>66,702</td>
<td>78,990</td>
</tr>
<tr>
<td>3 Reservation and transportation ticket agents and travel clerks</td>
<td>111,283</td>
<td>115,916</td>
</tr>
<tr>
<td>4 Customer service representatives</td>
<td>28,759</td>
<td>33,300</td>
</tr>
<tr>
<td>5 Aircraft mechanics and service technicians</td>
<td>55,499</td>
<td>59,894</td>
</tr>
<tr>
<td>6 Commercial pilots</td>
<td>7,082</td>
<td>8,949</td>
</tr>
<tr>
<td>7 All other business operations specialists</td>
<td>6,304</td>
<td>8,033</td>
</tr>
<tr>
<td>8 Baggage porters and bellhops</td>
<td>12,178</td>
<td>13,466</td>
</tr>
<tr>
<td>9 Maintenance and repair workers, general</td>
<td>6,902</td>
<td>8,130</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of mechanics, installers, and repairers</td>
<td>4,041</td>
<td>4,895</td>
</tr>
</tbody>
</table>
Table 9-5. Employment, Wages and Education/Training Requirements -
Air Transportation Occupations with the Most Jobs in 2002 and 2012,
and with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in air transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
<td>Number</td>
<td>Percent</td>
<td>Total New Hires²</td>
</tr>
<tr>
<td>Total, all occupations in Air Transportation</td>
<td>559,300</td>
<td>626,200</td>
<td>66,900</td>
<td>12.0%</td>
<td>N/A</td>
</tr>
<tr>
<td>Reservation and transportation ticket agents and travel clerks</td>
<td>111,283</td>
<td>115,916</td>
<td>4,634</td>
<td>4.2%</td>
<td>220,000</td>
</tr>
<tr>
<td>Airline pilots, copilots, and flight engineers</td>
<td>66,702</td>
<td>78,990</td>
<td>12,288</td>
<td>18.4%</td>
<td>51,000</td>
</tr>
<tr>
<td>Flight attendants</td>
<td>97,257</td>
<td>112,674</td>
<td>15,417</td>
<td>15.9%</td>
<td>215,000</td>
</tr>
<tr>
<td>Aircraft mechanics and service technicians</td>
<td>55,499</td>
<td>59,894</td>
<td>4,394</td>
<td>7.9%</td>
<td>51,000</td>
</tr>
<tr>
<td>Customer service representatives</td>
<td>28,759</td>
<td>33,300</td>
<td>4,541</td>
<td>15.8%</td>
<td>64,000</td>
</tr>
<tr>
<td>Baggage porters and bellhops</td>
<td>12,178</td>
<td>13,466</td>
<td>1,289</td>
<td>10.6%</td>
<td>31,000</td>
</tr>
<tr>
<td>Commercial pilots</td>
<td>7,082</td>
<td>8,949</td>
<td>1,866</td>
<td>26.4%</td>
<td>7,000</td>
</tr>
<tr>
<td>All other business operations specialists</td>
<td>6,304</td>
<td>8,033</td>
<td>1,730</td>
<td>27.4%</td>
<td>10,000</td>
</tr>
</tbody>
</table>

1 The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:


For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (= 630,000 * 44.72%). The validity of this measure needs further scrutiny.

2 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

3 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

4 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Maintenance and repair workers, general</td>
<td>6,902</td>
<td>8,130</td>
<td>1,228</td>
<td>17.8%</td>
<td>8,000</td>
<td>2,000</td>
<td>29.0%</td>
<td>29,370</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>First-line supervisors/managers of mechanics, installers, and repairers</td>
<td>4,041</td>
<td>4,895</td>
<td>855</td>
<td>21.1%</td>
<td>4,000</td>
<td>2,000</td>
<td>49.5%</td>
<td>47,580</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>All other sales and related workers</td>
<td>3,809</td>
<td>4,404</td>
<td>655</td>
<td>17.2%</td>
<td>7,000</td>
<td>2,000</td>
<td>52.5%</td>
<td>35,170</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Material moving workers, all other</td>
<td>4,227</td>
<td>4,678</td>
<td>451</td>
<td>10.7%</td>
<td>8,000</td>
<td>2,000</td>
<td>47.3%</td>
<td>25,070</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Cleaners of vehicles and equipment</td>
<td>5,173</td>
<td>5,573</td>
<td>400</td>
<td>7.7%</td>
<td>11,000</td>
<td>2,000</td>
<td>38.7%</td>
<td>17,860</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>General and operations managers</td>
<td>2,632</td>
<td>3,310</td>
<td>678</td>
<td>25.8%</td>
<td>3,000</td>
<td>1,000</td>
<td>38.0%</td>
<td>68,210</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Production, planning, and expediting clerks</td>
<td>3,746</td>
<td>4,398</td>
<td>652</td>
<td>17.4%</td>
<td>7,000</td>
<td>1,000</td>
<td>26.7%</td>
<td>33,650</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Training and development specialists</td>
<td>2,822</td>
<td>3,462</td>
<td>640</td>
<td>22.7%</td>
<td>5,000</td>
<td>1,000</td>
<td>35.4%</td>
<td>42,800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Transportation, storage, and distribution managers</td>
<td>3,258</td>
<td>3,866</td>
<td>608</td>
<td>18.7%</td>
<td>4,000</td>
<td>1,000</td>
<td>30.7%</td>
<td>59,660</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Transportation attendants, except flight attendants and baggage porters</td>
<td>2,578</td>
<td>3,090</td>
<td>512</td>
<td>19.8%</td>
<td>6,000</td>
<td>1,000</td>
<td>38.8%</td>
<td>18,720</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>All other managers</td>
<td>2,497</td>
<td>2,946</td>
<td>449</td>
<td>18%</td>
<td>3,000</td>
<td>1,000</td>
<td>40.0%</td>
<td>66,890</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Accountants and auditors</td>
<td>1,690</td>
<td>2,067</td>
<td>377</td>
<td>22.3%</td>
<td>2,000</td>
<td>1,000</td>
<td>59.2%</td>
<td>47,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in air transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Air Transportation</td>
<td>559,300</td>
<td>66,900</td>
<td>12.0%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>1,690</td>
<td>2,067</td>
<td>22.3%</td>
<td>2,000</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>All other sales and related workers</td>
<td>3,809</td>
<td>4,464</td>
<td>17.2%</td>
<td>7,000</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Airline pilots, copilots, and flight engineers</td>
<td>66,702</td>
<td>78,990</td>
<td>18.4%</td>
<td>51,000</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>First-line supervisors/managers of mechanics, installers, and repairers</td>
<td>4,041</td>
<td>4,895</td>
<td>21.1%</td>
<td>4,000</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>All other business operations specialists</td>
<td>6,304</td>
<td>8,033</td>
<td>27.4%</td>
<td>10,000</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>Material moving workers, all other</td>
<td>4,227</td>
<td>4,678</td>
<td>10.7%</td>
<td>8,000</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Commercial pilots</td>
<td>7,082</td>
<td>8,949</td>
<td>26.4%</td>
<td>7,000</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>All other managers</td>
<td>2,497</td>
<td>2,946</td>
<td>18%</td>
<td>3,000</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Reservation and transportation ticket agents and travel clerks</td>
<td>111,283</td>
<td>115,916</td>
<td>4.2%</td>
<td>220,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Transportation attendants, except flight attendants and baggage porters</td>
<td>2,578</td>
<td>3,090</td>
<td>19.8%</td>
<td>6,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Cleaners of vehicles and equipment</td>
<td>5,173</td>
<td>5,573</td>
<td>7.7%</td>
<td>11,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Customer service representatives</td>
<td>28,759</td>
<td>33,300</td>
<td>15.8%</td>
<td>64,000</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>2,632</td>
<td>3,310</td>
<td>25.8%</td>
<td>3,000</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>Aircraft mechanics and service technicians</td>
<td>55,499</td>
<td>59,894</td>
<td>7.9%</td>
<td>51,000</td>
<td>Postsecondary vocational award</td>
</tr>
<tr>
<td>Training and development specialists</td>
<td>2,822</td>
<td>3,462</td>
<td>22.7%</td>
<td>5,000</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>--------</td>
<td>--------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Baggage porters and bellhops</td>
<td>12,178</td>
<td>13,466</td>
<td>1,289</td>
<td>10.6%</td>
<td>31,000</td>
</tr>
<tr>
<td>Transportation, storage, and distribution managers</td>
<td>3,258</td>
<td>3,866</td>
<td>608</td>
<td>18.7%</td>
<td>4,000</td>
</tr>
<tr>
<td>Maintenance and repair workers, general</td>
<td>6,902</td>
<td>8,130</td>
<td>1,228</td>
<td>17.8%</td>
<td>8,000</td>
</tr>
<tr>
<td>Flight attendants</td>
<td>97,257</td>
<td>112,674</td>
<td>15,417</td>
<td>15.9%</td>
<td>215,000</td>
</tr>
<tr>
<td>Production, planning, and expediting clerks</td>
<td>3,746</td>
<td>4,398</td>
<td>652</td>
<td>17.4%</td>
<td>7,000</td>
</tr>
</tbody>
</table>
Part 10. Water Transportation Occupations

Highlights:

- The water transportation industry provided a total of 51,600 jobs in 2002. Employment in this industry is projected to contract at a rate of 2.7 percent, suffering a loss of 1,400 jobs.

- Sailors and marine oilers have the largest employment in both 2002 and projected 2012.

- Four of the ten fastest-growing occupations are related to computer, network, and information systems. Other fast-growing areas of employment include reservations and ticketing, public relations, finance, sales, and truck driving.

- Less than half of occupations in water transportation are projected to experience job growth over 2002-12. Of these, only jobs for reservation and transportation ticket agents and travel clerks are expected to increase by more than 100. These positions require only short-term on-the-job training and provide average earnings.

- The demand for new hires is bigger when considering both net growth in occupational employment and replacement of exiting workers. The water transportation industry will need to hire and train at least 3,000 sailors and marine oilers between 2002 and 2012, mostly due to replacement of turnover. See Table 10-5 A for details.

- Occupations with the highest rate of increased training by comparing net new hires with 2002 employment include database administrators, computer and information systems managers, and sales managers. These jobs require college education and some related work experience. See Table 10-5 B for details.
### Table 10-1. Water Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600</td>
<td>50,200</td>
</tr>
<tr>
<td>1 Sailors and marine oilers</td>
<td>8,771</td>
<td>8,782</td>
</tr>
<tr>
<td>2 Captains, mates, and pilots of water vessels</td>
<td>7,683</td>
<td>7,424</td>
</tr>
<tr>
<td>3 Ship engineers</td>
<td>3,468</td>
<td>3,443</td>
</tr>
<tr>
<td>4 Customer service representatives</td>
<td>1,364</td>
<td>1,405</td>
</tr>
<tr>
<td>5 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142</td>
<td>1,314</td>
</tr>
<tr>
<td>6 Laborers and freight, stock, and material movers, hand</td>
<td>1,131</td>
<td>904</td>
</tr>
<tr>
<td>7 General and operations managers</td>
<td>1,070</td>
<td>1,027</td>
</tr>
<tr>
<td>8 All other water transportation workers</td>
<td>939</td>
<td>926</td>
</tr>
<tr>
<td>9 Bookkeeping, accounting, and auditing clerks</td>
<td>871</td>
<td>754</td>
</tr>
<tr>
<td>10 Executive secretaries and administrative assistants</td>
<td>765</td>
<td>673</td>
</tr>
</tbody>
</table>

### Table 10-2. Water Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600</td>
<td>50,200</td>
</tr>
<tr>
<td>1 Sailors and marine oilers</td>
<td>8,771</td>
<td>8,782</td>
</tr>
<tr>
<td>2 Captains, mates, and pilots of water vessels</td>
<td>7,683</td>
<td>7,424</td>
</tr>
<tr>
<td>3 Ship engineers</td>
<td>3,468</td>
<td>3,443</td>
</tr>
<tr>
<td>4 Customer service representatives</td>
<td>1,364</td>
<td>1,405</td>
</tr>
<tr>
<td>5 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142</td>
<td>1,314</td>
</tr>
<tr>
<td>6 General and operations managers</td>
<td>1,070</td>
<td>1,027</td>
</tr>
<tr>
<td>7 All other water transportation workers</td>
<td>939</td>
<td>926</td>
</tr>
<tr>
<td>8 Laborers and freight, stock, and material movers, hand</td>
<td>1,131</td>
<td>904</td>
</tr>
<tr>
<td>9 Bookkeeping, accounting, and auditing clerks</td>
<td>871</td>
<td>754</td>
</tr>
<tr>
<td>10 All other business operations specialists</td>
<td>658</td>
<td>734</td>
</tr>
</tbody>
</table>
### Table 10-3. Water Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600</td>
<td>50,200</td>
</tr>
<tr>
<td>1 Database administrators</td>
<td>65</td>
<td>75</td>
</tr>
<tr>
<td>2 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142</td>
<td>1,314</td>
</tr>
<tr>
<td>3 Public relations specialists</td>
<td>156</td>
<td>179</td>
</tr>
<tr>
<td>4 All other computer specialists</td>
<td>55</td>
<td>62</td>
</tr>
<tr>
<td>5 Computer and information systems managers</td>
<td>170</td>
<td>191</td>
</tr>
<tr>
<td>6 Compensation, benefits, and job analysis specialists</td>
<td>75</td>
<td>84</td>
</tr>
<tr>
<td>7 Sales managers</td>
<td>279</td>
<td>313</td>
</tr>
<tr>
<td>8 All other business operations specialists</td>
<td>658</td>
<td>734</td>
</tr>
<tr>
<td>9 Network and computer systems administrators</td>
<td>107</td>
<td>118</td>
</tr>
<tr>
<td>10 Truck drivers, heavy and tractor-trailer</td>
<td>491</td>
<td>529</td>
</tr>
</tbody>
</table>

### Table 10-4. Water Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600</td>
<td>50,200</td>
</tr>
<tr>
<td>1 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142</td>
<td>1,314</td>
</tr>
<tr>
<td>2 All other business operations specialists</td>
<td>658</td>
<td>734</td>
</tr>
<tr>
<td>3 Customer service representatives</td>
<td>1,364</td>
<td>1,405</td>
</tr>
<tr>
<td>4 Truck drivers, heavy and tractor-trailer</td>
<td>491</td>
<td>529</td>
</tr>
<tr>
<td>5 Sales managers</td>
<td>279</td>
<td>313</td>
</tr>
<tr>
<td>6 All other sales and related workers</td>
<td>676</td>
<td>702</td>
</tr>
<tr>
<td>7 Public relations specialists</td>
<td>156</td>
<td>179</td>
</tr>
<tr>
<td>8 Computer and information systems managers</td>
<td>170</td>
<td>191</td>
</tr>
<tr>
<td>9 First-line supervisors/managers of non-retail sales workers</td>
<td>233</td>
<td>251</td>
</tr>
<tr>
<td>10 Transportation attendants, except flight attendants and baggage porters</td>
<td>707</td>
<td>722</td>
</tr>
</tbody>
</table>
Table 10-5. Employment, Wages and Education/Training Requirements – Water Transportation Occupations with the Most Jobs in 2002 and 2012, and with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in water transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings¹</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600 50,200</td>
<td>-1400 -2.7%</td>
<td>N/A N/A</td>
<td>N/A N/A</td>
<td></td>
</tr>
<tr>
<td>1 Sailors and marine oilers</td>
<td>8,771 8,782</td>
<td>11 0.1%</td>
<td>10,000 3,000 34.2%</td>
<td>28,370 Short-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>2 Customer service representatives</td>
<td>1,364 1,405</td>
<td>41 3.0%</td>
<td>3,000 518 38.0%</td>
<td>26,240 Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>3 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142 1,314</td>
<td>172 15.1%</td>
<td>2,000 448 39.2%</td>
<td>25,350 Short-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>4 All other sales and related workers</td>
<td>676 702</td>
<td>27 3.9%</td>
<td>1,000 300 44.4%</td>
<td>35,170 Moderate-term on-the-job training</td>
<td></td>
</tr>
<tr>
<td>5 All other business operations specialists</td>
<td>658 734</td>
<td>76 11.6%</td>
<td>1,000 282 42.9%</td>
<td>50,680 Bachelor's degree</td>
<td></td>
</tr>
<tr>
<td>6 Transportation attendants, except flight attendants and baggage porters</td>
<td>707 722</td>
<td>16 2.2%</td>
<td>2,000 271 38.3%</td>
<td>18,720 Short-term on-the-job training</td>
<td></td>
</tr>
</tbody>
</table>

¹ The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:


For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (= 630,000 * 44.72%). The validity of this measure needs further scrutiny.

2 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

3 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

4 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th>#</th>
<th>Occupation</th>
<th>Number</th>
<th>Percentage</th>
<th>Experience Required</th>
<th>Degree Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Truck drivers, heavy and tractor-trailer</td>
<td>491</td>
<td>38</td>
<td>7.7%</td>
<td>38.5%</td>
</tr>
<tr>
<td>8</td>
<td>Transportation, storage, and distribution managers</td>
<td>477</td>
<td>12</td>
<td>2.5%</td>
<td>36.1%</td>
</tr>
<tr>
<td>9</td>
<td>Sales managers</td>
<td>279</td>
<td>34</td>
<td>12.1%</td>
<td>48.7%</td>
</tr>
<tr>
<td>10</td>
<td>Sales representatives, wholesale and manufacturing, except technical and scientific products</td>
<td>279</td>
<td>9</td>
<td>3.2%</td>
<td>47.3%</td>
</tr>
<tr>
<td>11</td>
<td>Purchasing agents, except wholesale, retail, and farm products</td>
<td>319</td>
<td>10</td>
<td>3.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>12</td>
<td>Production, planning, and expediting clerks</td>
<td>248</td>
<td>10</td>
<td>4.2%</td>
<td>39.9%</td>
</tr>
<tr>
<td>13</td>
<td>Computer and information systems managers</td>
<td>170</td>
<td>22</td>
<td>12.7%</td>
<td>52.9%</td>
</tr>
<tr>
<td>14</td>
<td>Dishwashers</td>
<td>209</td>
<td>9</td>
<td>4.5%</td>
<td>42.1%</td>
</tr>
<tr>
<td>15</td>
<td>Public relations specialists</td>
<td>156</td>
<td>23</td>
<td>15.0%</td>
<td>44.9%</td>
</tr>
<tr>
<td>16</td>
<td>All other managers</td>
<td>254</td>
<td>9</td>
<td>3.6%</td>
<td>24.4%</td>
</tr>
<tr>
<td>17</td>
<td>First-line supervisors/managers of non-retail sales workers</td>
<td>233</td>
<td>18</td>
<td>7.6%</td>
<td>25.8%</td>
</tr>
<tr>
<td>18</td>
<td>Network and computer systems administrators</td>
<td>107</td>
<td>11</td>
<td>10.3%</td>
<td>44.9%</td>
</tr>
<tr>
<td>19</td>
<td>Database administrators</td>
<td>65</td>
<td>10</td>
<td>15.3%</td>
<td>55.4%</td>
</tr>
<tr>
<td>20</td>
<td>Compensation, benefits, and job analysis specialists</td>
<td>75</td>
<td>9</td>
<td>12.5%</td>
<td>42.7%</td>
</tr>
</tbody>
</table>
B. Ranked by Percentage of 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in water transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all occupations in Water Transportation</td>
<td>51,600</td>
<td>-1,400</td>
<td>Total New Hires (N/A)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Database administrators</td>
<td>65</td>
<td>75</td>
<td>10</td>
<td>96</td>
<td>55.4% Degree plus work experience</td>
</tr>
<tr>
<td>2 Computer and information systems managers</td>
<td>170</td>
<td>191</td>
<td>22</td>
<td>234</td>
<td>52.9% Degree plus work experience</td>
</tr>
<tr>
<td>3 Sales managers</td>
<td>279</td>
<td>313</td>
<td>34</td>
<td>432</td>
<td>48.7% Degree plus work experience</td>
</tr>
<tr>
<td>4 Sales representatives, wholesale and manufacturing, except technical and scientific products</td>
<td>279</td>
<td>287</td>
<td>9</td>
<td>320</td>
<td>47.3% Moderate-term on-the-job training</td>
</tr>
<tr>
<td>5 Public relations specialists</td>
<td>156</td>
<td>179</td>
<td>23</td>
<td>280</td>
<td>44.9% Bachelor's degree</td>
</tr>
<tr>
<td>6 Network and computer systems administrators</td>
<td>107</td>
<td>118</td>
<td>11</td>
<td>140</td>
<td>44.9% Bachelor's degree</td>
</tr>
<tr>
<td>7 All other sales and related workers</td>
<td>676</td>
<td>702</td>
<td>27</td>
<td>1,000</td>
<td>44.4% Moderate-term on-the-job training</td>
</tr>
<tr>
<td>8 All other business operations specialists</td>
<td>658</td>
<td>734</td>
<td>76</td>
<td>2,820</td>
<td>42.9% Bachelor's degree</td>
</tr>
<tr>
<td>9 Compensation, benefits, and job analysis specialists</td>
<td>75</td>
<td>84</td>
<td>9</td>
<td>120</td>
<td>42.7% Bachelor's degree</td>
</tr>
<tr>
<td>10 Dishwashers</td>
<td>209</td>
<td>218</td>
<td>9</td>
<td>664</td>
<td>42.1% Short-term on-the-job training</td>
</tr>
<tr>
<td>11 Production, planning, and expediting clerks</td>
<td>248</td>
<td>259</td>
<td>10</td>
<td>459</td>
<td>39.9% Short-term on-the-job training</td>
</tr>
<tr>
<td>12 Reservation and transportation ticket agents and travel clerks</td>
<td>1,142</td>
<td>1,314</td>
<td>172</td>
<td>2,000</td>
<td>39.2% Short-term on-the-job training</td>
</tr>
<tr>
<td>13 Truck drivers, heavy and tractor-trailer</td>
<td>491</td>
<td>529</td>
<td>38</td>
<td>1,000</td>
<td>38.5% Moderate-term on-the-job training</td>
</tr>
<tr>
<td>14 Transportation attendants, except flight attendants and baggage porters</td>
<td>707</td>
<td>722</td>
<td>16</td>
<td>2,000</td>
<td>38.3% Short-term on-the-job training</td>
</tr>
<tr>
<td>15 Customer service representatives</td>
<td>1,364</td>
<td>1,405</td>
<td>41</td>
<td>3,000</td>
<td>38.0% Moderate-term on-the-job training</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
<td>Employees</td>
<td>Earnings</td>
<td>Earnings</td>
<td>Rate</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------------</td>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
<td>------</td>
</tr>
<tr>
<td>16</td>
<td>Purchasing agents, except wholesale, retail, and farm products</td>
<td>319</td>
<td>329</td>
<td>10</td>
<td>3.3%</td>
</tr>
<tr>
<td>17</td>
<td>Transportation, storage, and distribution managers</td>
<td>477</td>
<td>489</td>
<td>12</td>
<td>2.5%</td>
</tr>
<tr>
<td>18</td>
<td>Sailors and marine oilers</td>
<td>8,771</td>
<td>8,782</td>
<td>11</td>
<td>0.1%</td>
</tr>
<tr>
<td>19</td>
<td>First-line supervisors/managers of non-retail sales workers</td>
<td>233</td>
<td>251</td>
<td>18</td>
<td>7.6%</td>
</tr>
<tr>
<td>20</td>
<td>All other managers</td>
<td>254</td>
<td>263</td>
<td>9</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

- **Work experience in a related occupation**
- **Short-term on-the-job training**

4/15/2004  Page 70
Part 11. Rail Transportation Occupations

**Highlights:**

- Rail transportation workers held around 218,000 jobs in 2002. Employment in all rail transportation occupations is projected to decrease by almost ten percent between 2002 and 2012, losing 21,200 jobs.

- Railroad conductors and yardmasters had the largest employment in 2002 and are projected to have the largest employment in 2012.

- Only fourteen occupations in rail transportation are expected to see job growth over 2002-12. The only occupation projected to provide more than 100 new jobs is subway and streetcar operator, for which jobs require prior work experience but provide greater-than-average earnings. Subway and streetcar operator is also the fastest growing occupation in this industry.

- Between 2002 and 2012, more than 4,000 workers will be hired into the rail transportation industry as subway and streetcar operators, due to net growth and replacement of workers leaving the occupation. The number of new hires accounts for nearly 60% of the occupational employment in 2002.
### Table 11-1. Rail Transportation Occupations with the Most Jobs in 2002

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>218,100</td>
<td>196,900</td>
</tr>
<tr>
<td>1 Railroad conductors and yardmasters</td>
<td>33,859</td>
<td>31,883</td>
</tr>
<tr>
<td>2 Railroad brake, signal, and switch operators</td>
<td>13,801</td>
<td>10,397</td>
</tr>
<tr>
<td>3 Office clerks, general</td>
<td>12,207</td>
<td>10,010</td>
</tr>
<tr>
<td>4 Rail car repairers</td>
<td>7,405</td>
<td>6,275</td>
</tr>
<tr>
<td>5 Rail-track laying and maintenance equipment operators</td>
<td>7,230</td>
<td>6,127</td>
</tr>
<tr>
<td>6 Signal and track switch repairers</td>
<td>6,747</td>
<td>6,354</td>
</tr>
<tr>
<td>7 Subway, streetcar operators and all other rail transportation workers</td>
<td>6,719</td>
<td>7,643</td>
</tr>
<tr>
<td>8 Machinists</td>
<td>5,412</td>
<td>4,695</td>
</tr>
<tr>
<td>9 First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>4,781</td>
<td>4,119</td>
</tr>
<tr>
<td>10 Transportation, storage, and distribution managers</td>
<td>4,399</td>
<td>4,142</td>
</tr>
</tbody>
</table>

### Table 11-2. Rail Transportation Occupations with the Most Jobs in 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>2002-2012 Employment Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>218,100</td>
<td>196,900</td>
</tr>
<tr>
<td>1 Railroad conductors and yardmasters</td>
<td>33,859</td>
<td>31,883</td>
</tr>
<tr>
<td>2 Railroad brake, signal, and switch operators</td>
<td>13,801</td>
<td>10,397</td>
</tr>
<tr>
<td>3 Office clerks, general</td>
<td>12,207</td>
<td>10,010</td>
</tr>
<tr>
<td>4 Subway, streetcar operators and all other rail transportation workers</td>
<td>6,719</td>
<td>7,643</td>
</tr>
<tr>
<td>5 Signal and track switch repairers</td>
<td>6,747</td>
<td>6,354</td>
</tr>
<tr>
<td>6 Rail car repairers</td>
<td>7,405</td>
<td>6,275</td>
</tr>
<tr>
<td>7 Rail-track laying and maintenance equipment operators</td>
<td>7,230</td>
<td>6,127</td>
</tr>
<tr>
<td>8 Machinists</td>
<td>5,412</td>
<td>4,695</td>
</tr>
<tr>
<td>9 Transportation, storage, and distribution managers</td>
<td>4,399</td>
<td>4,142</td>
</tr>
<tr>
<td>10 First-line supervisors/managers of transportation and material-moving machine and vehicle operators</td>
<td>4,781</td>
<td>4,119</td>
</tr>
</tbody>
</table>
Table 11-3. Rail Transportation Occupations with the Highest Percentage Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment Numbers</th>
<th>Employment Change 2002-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>218,100</td>
<td>-21,200 (-9.7%)</td>
</tr>
<tr>
<td>1 Subway, streetcar operators and all other rail transportation workers</td>
<td>6,719</td>
<td>923 (13.7%)</td>
</tr>
<tr>
<td>2 Computer systems analysts</td>
<td>246</td>
<td>17 (7.0%)</td>
</tr>
<tr>
<td>3 Reservation and transportation ticket agents</td>
<td>879</td>
<td>41 (4.6%)</td>
</tr>
<tr>
<td>4 Public relations specialists</td>
<td>226</td>
<td>8 (3.6%)</td>
</tr>
<tr>
<td>Electricians</td>
<td>1,821</td>
<td>65 (3.6%)</td>
</tr>
<tr>
<td>Heating, air conditioning, and refrigeration mechanics and installers</td>
<td>201</td>
<td>7 (3.6%)</td>
</tr>
<tr>
<td>7 All other business operations specialists</td>
<td>1,813</td>
<td>50 (2.8%)</td>
</tr>
<tr>
<td>8 Computer and information systems managers</td>
<td>132</td>
<td>3 (2.3%)</td>
</tr>
<tr>
<td>9 All other computer specialists</td>
<td>224</td>
<td>5 (2.3%)</td>
</tr>
<tr>
<td>10 Sales managers</td>
<td>85</td>
<td>2 (2.1%)</td>
</tr>
</tbody>
</table>

Table 11-4. Rail Transportation Occupations with the Largest Numerical Increase between 2002 and 2012

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment Change 2002-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>-21,200 (-9.7%)</td>
</tr>
<tr>
<td>1 Subway, streetcar operators and all other rail transportation workers</td>
<td>923 (13.7%)</td>
</tr>
<tr>
<td>2 Electricians</td>
<td>17 (7.0%)</td>
</tr>
<tr>
<td>3 All other business operations specialists</td>
<td>41 (4.6%)</td>
</tr>
<tr>
<td>4 Reservation and transportation ticket agents</td>
<td>17 (7.0%)</td>
</tr>
<tr>
<td>5 Operating engineers and other construction equipment operators</td>
<td>10 (1.5%)</td>
</tr>
<tr>
<td>8 Public relations specialists</td>
<td>8 (3.6%)</td>
</tr>
<tr>
<td>9 Heating, air conditioning, and refrigeration mechanics and installers</td>
<td>7 (3.6%)</td>
</tr>
<tr>
<td>10 All other computer specialists</td>
<td>5 (2.3%)</td>
</tr>
</tbody>
</table>
Table 11-5. Employment, Wages and Education/Training Requirements – Rail Transportation Occupations with Most Jobs in 2002 and 2012, and Occupations with the Highest Percentage and Numerical Increase between 2002 and 2012

A. Ranked by 2002-2012 Net New Hires:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in rail transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>218,100</td>
<td>-21,200</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Subway, streetcar operators and all other rail transportation workers</td>
<td>6,719</td>
<td>923</td>
<td>9,000</td>
<td>44,680</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Electricians</td>
<td>1,821</td>
<td>65</td>
<td>2,000</td>
<td>41,390</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>All other business operations specialists</td>
<td>1,813</td>
<td>50</td>
<td>3,000</td>
<td>50,680</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>Reservation and transportation ticket agents</td>
<td>879</td>
<td>41</td>
<td>2,000</td>
<td>25,350</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Operating engineers and other construction equipment operators</td>
<td>636</td>
<td>10</td>
<td>1,000</td>
<td>35,240</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Training and development specialists</td>
<td>308</td>
<td>3</td>
<td>525</td>
<td>42,800</td>
<td>Bachelor’s degree</td>
</tr>
</tbody>
</table>

1 The 2002-2012 Total Job Openings are Center estimates based on BLS’s public data. Total job openings data have never been published by BLS on industry or industry sub-sector levels. After consulting with economists at BLS’s Office of Occupational Statistics and Employment, the Center researcher decided to use the following formula to calculate our best possible estimates:

\[
\text{Total job openings of an occupation in a particular industry/sector} = (2002-2012 \text{ Economy-wide total job openings for the occupation}) \times (2002 \text{ Percentage distribution of industry occupational employment}).
\]

For instance, heavy and tractor-trailer truck drivers have economy-wide total job openings of 630,000 between 2002 and 2012. Transportation industry employment of this occupation accounts for 44.72% of its overall employment. Therefore, total job openings for heavy and tractor-trailer truck drivers in the transportation industry is 281,736 (= 630,000 * 44.72%). The validity of this measure needs further scrutiny.

2 Total New Hires refers to increase in employment due to growth and total replacement needs. Total replacement needs include replacement of workers that exit the occupation due to retirement, death or other reasons, and total job transfers within the same occupation. Total New Hires represents the overall recruitment needs for a particular occupation.

3 Net New Hires refers to increase in employment due to growth and net replacement needs. Net replacement needs include only replacement of workers that exit the occupation due to retirement, death or other reasons. Workers that shift employers but still remain in the same occupation are not counted in this category. Net New Hires reflects the minimum training needs for a particular occupation.

4 Percent of Net New Hires is calculated by comparing the 2002-2012 Net New Hires against the 2002 actual occupational employment.
<table>
<thead>
<tr>
<th>7</th>
<th>Computer systems analysts</th>
<th>246</th>
<th>263</th>
<th>17</th>
<th>7.0%</th>
<th>340</th>
<th>120</th>
<th>48.8%</th>
<th>62,890</th>
<th>Bachelor's degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>All other computer specialists</td>
<td>224</td>
<td>229</td>
<td>5</td>
<td>2.3%</td>
<td>324</td>
<td>108</td>
<td>48.2%</td>
<td>54,070</td>
<td>Associate's degree</td>
</tr>
<tr>
<td>9</td>
<td>Public relations specialists</td>
<td>226</td>
<td>234</td>
<td>8</td>
<td>3.6%</td>
<td>392</td>
<td>98</td>
<td>43.4%</td>
<td>41,710</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>10</td>
<td>Heating, air conditioning, and refrigeration mechanics and installers</td>
<td>201</td>
<td>208</td>
<td>7</td>
<td>3.6%</td>
<td>280</td>
<td>88</td>
<td>43.8%</td>
<td>34,900</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>11</td>
<td>Computer and information systems managers</td>
<td>132</td>
<td>135</td>
<td>3</td>
<td>2.3%</td>
<td>195</td>
<td>75</td>
<td>56.8%</td>
<td>85,240</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>12</td>
<td>Compensation, benefits, and job analysis specialists</td>
<td>83</td>
<td>84</td>
<td>2</td>
<td>1.9%</td>
<td>135</td>
<td>36</td>
<td>43.4%</td>
<td>45,100</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>13</td>
<td>Sales managers</td>
<td>85</td>
<td>86</td>
<td>2</td>
<td>2.1%</td>
<td>108</td>
<td>34</td>
<td>40.0%</td>
<td>75,040</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>14</td>
<td>Market research analysts</td>
<td>54</td>
<td>51</td>
<td>-3</td>
<td>-4.9%</td>
<td>72</td>
<td>28</td>
<td>51.9%</td>
<td>53,810</td>
<td>Master's degree</td>
</tr>
<tr>
<td>15</td>
<td>Network and computer systems administrators</td>
<td>57</td>
<td>57</td>
<td>0</td>
<td>0.7%</td>
<td>70</td>
<td>24</td>
<td>42.1%</td>
<td>54,810</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>16</td>
<td>Budget analysts</td>
<td>57</td>
<td>54</td>
<td>-3</td>
<td>-5.8%</td>
<td>72</td>
<td>18</td>
<td>31.6%</td>
<td>52,480</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>17</td>
<td>Industrial machinery mechanics</td>
<td>62</td>
<td>61</td>
<td>0</td>
<td>-0.7%</td>
<td>57</td>
<td>15</td>
<td>24.2%</td>
<td>37,980</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>18</td>
<td>First-line supervisors/managers of non-retail sales workers</td>
<td>61</td>
<td>60</td>
<td>-2</td>
<td>-2.6%</td>
<td>72</td>
<td>15</td>
<td>24.6%</td>
<td>53,020</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>19</td>
<td>Power plant operators</td>
<td>51</td>
<td>48</td>
<td>-3</td>
<td>-5.9%</td>
<td>42</td>
<td>14</td>
<td>27.5%</td>
<td>49,920</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>20</td>
<td>Transit and railroad police</td>
<td>1,348</td>
<td>1,363</td>
<td>15</td>
<td>1.1%</td>
<td>2,000</td>
<td>0</td>
<td>0.0%</td>
<td>43,710</td>
<td>Long-term on-the-job training</td>
</tr>
</tbody>
</table>
**B. Ranked by Percentage of 2002-2012 Net New Hires:**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment in rail transportation</th>
<th>2002-2012 change in employment</th>
<th>2002-2012 Job Openings</th>
<th>2002 Median annual earnings (Dollars)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, all Rail Transportation occupations</td>
<td>218,100</td>
<td>196,900</td>
<td>-21,200</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Subway, streetcar operators and all other rail transportation workers</td>
<td>6,719</td>
<td>7,643</td>
<td>923</td>
<td>9,000</td>
<td>Work experience in a related occupation</td>
</tr>
<tr>
<td>Computer and information systems managers</td>
<td>132</td>
<td>135</td>
<td>3</td>
<td>195</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>All other business operations specialists</td>
<td>1,813</td>
<td>1,863</td>
<td>50</td>
<td>3,000</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Electricians</td>
<td>1,821</td>
<td>1,886</td>
<td>65</td>
<td>2,000</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>Market research analysts</td>
<td>54</td>
<td>51</td>
<td>-3</td>
<td>72</td>
<td>Master's degree</td>
</tr>
<tr>
<td>Computer systems analysts</td>
<td>246</td>
<td>263</td>
<td>17</td>
<td>340</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>All other computer specialists</td>
<td>224</td>
<td>229</td>
<td>5</td>
<td>324</td>
<td>Associate's degree</td>
</tr>
<tr>
<td>Training and development specialists</td>
<td>308</td>
<td>305</td>
<td>-3</td>
<td>525</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Heating, air conditioning, and refrigeration mechanics and installers</td>
<td>201</td>
<td>208</td>
<td>7</td>
<td>280</td>
<td>Long-term on-the-job training</td>
</tr>
<tr>
<td>Public relations specialists</td>
<td>226</td>
<td>234</td>
<td>8</td>
<td>392</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Compensation, benefits, and job analysis specialists</td>
<td>83</td>
<td>84</td>
<td>2</td>
<td>135</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Network and computer systems administrators</td>
<td>57</td>
<td>57</td>
<td>0</td>
<td>70</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Sales managers</td>
<td>85</td>
<td>86</td>
<td>2</td>
<td>108</td>
<td>Degree plus work experience</td>
</tr>
<tr>
<td>Reservation and transportation ticket agents</td>
<td>879</td>
<td>920</td>
<td>41</td>
<td>2,000</td>
<td>Short-term on-the-job training</td>
</tr>
<tr>
<td>Operating engineers and other construction equipment operators</td>
<td>636</td>
<td>646</td>
<td>10</td>
<td>1,000</td>
<td>Moderate-term on-the-job training</td>
</tr>
<tr>
<td>Budget analysts</td>
<td>57</td>
<td>54</td>
<td>-3</td>
<td>72</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
<td>Q2</td>
<td>Q1</td>
<td>Change</td>
<td>% Change</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------</td>
<td>----</td>
<td>----</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>17</td>
<td>Power plant operators</td>
<td>51</td>
<td>48</td>
<td>-3</td>
<td>-5.9%</td>
</tr>
<tr>
<td>18</td>
<td>First-line supervisors/ managers of non-retail sales workers</td>
<td>61</td>
<td>60</td>
<td>-2</td>
<td>-2.6%</td>
</tr>
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<td>19</td>
<td>Industrial machinery mechanics</td>
<td>62</td>
<td>61</td>
<td>0</td>
<td>-0.7%</td>
</tr>
<tr>
<td>20</td>
<td>Transit and railroad police</td>
<td>1,348</td>
<td>1,363</td>
<td>15</td>
<td>1.1%</td>
</tr>
</tbody>
</table>
Appendix A

Profiles: Key Transportation Industry Association, Union, and Joint Workforce Development Initiative – Preliminary List

Part 1. Key Transportation Industry Associations

I. Cross-Sector .................................................................1
II. Transit and Ground Passenger Transportation .........................2
III. Trucking, Warehousing and Logistics ...................................4
IV. Air Transportation ........................................................5
V. Water Transportation .......................................................6
VI. Rail Transportation ........................................................10

Part 2. Key Transportation Industry Unions

I. Cross-Sector .................................................................12
II. Air Transportation ...........................................................14
III. Longshore and Warehousing ..............................................14
IV. Water Transportation .......................................................15
V. Rail Transportation ...........................................................16

Part 3. Labor-Management and Partnership Workforce Development Programs

I. Transit and Ground Passenger Transportation ..............................18
II. Trucking and Warehousing ..................................................19
III. Water Transportation .......................................................20
IV. Rail Transportation ..........................................................22
V. Cross-Sector and Non-Transportation ....................................23
Part 1. Key Transportation Industry Associations

Like other US industry associations, most of the industry associations in transportation are primarily policy and lobbying organizations. With few exceptions, they have little involvement with issues of skills or workforce development. The exceptions are, however, important. Beyond workforce technical skills, there has been a large expansion in available federal funding for security training throughout the transportation industry since 9/11. By and large training under these funding sources is still just getting underway, and it remains separate and distinct from other workforce training initiatives.

I. Cross-Sector

AASHTO, while comprehensive in membership, is purely a public policy advocacy organization with no engagement on workforce development issues. IANA and NITL have some activities relating to new technologies and professional development, but little on workforce development.

A. American Association of State Highway and Transportation Officials (AASHTO), www.transportation1.org

The American Association of State Highway and Transportation Officials is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico.

It represents all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.

The membership of AASHTO is composed only of instrumentalities of government. The membership of this association is by Member Departments, which shall be those departments or agencies of the states of the United States, Puerto Rico and the District of Columbia in which the official highway responsibility for that state or territory is lodged, and the United States Department of Transportation which is an ex officio member.

B. Intermodal Association of North America (IANA), www.intermodal.org

The Intermodal Association of North America is North America's leading industry trade association representing the combined interests of the intermodal freight industry.

IANA's membership roster of six hundred corporate members includes railroads, comprised of Class I, short-line and regional; water carriers and stacktrain operators; port authorities; intermodal truckers and over-the-road highway carriers; intermodal marketing and logistics companies; and suppliers to the industry such as equipment manufacturers, intermodal leasing companies and consulting firms. IANA's associate members include shippers, academic institutions, government entities and non-profit associations.
IANA's goals include promoting the benefits of intermodal transportation to the shipping community; providing its members a forum to discuss common issues and innovations; fostering its members' professional development; participating in governmental proceedings impacting the industry; and informing and educating lawmakers and other public sector representatives about intermodalism.

C. **The National Industrial Transportation League, www.nitl.org**

The National Industrial Transportation League was formed in 1907 to represent the interests of shippers before government regulatory agencies. With the advent of deregulation and globalization, however, the League has evolved into a broad-based advocacy organization for freight transportation. The League consists of 1,400 member companies and affiliates.

II. **Transit and Ground Passenger Transportation**

APTA is the main organization for the transit industry, and it has made workforce development a major priority in the past few years. The Community Transportation Association of America is focused on the needs of rural transit systems and has some skill training initiatives within that sector.

A. **American Bus Association (ABA), www.buses.org**

The American Bus Association, the trade association of the intercity bus industry, represents the motorcoach industry's interests in Washington, D.C. It also facilitates relationships between North American motorcoach and tour companies and all related segments of the travel and supplier industries and promotes travel by motorcoach to consumers.

ABA represents approximately 950 motorcoach and tour companies in the United States and Canada. Its members operate charter, tour, regular route, airport express, special operations and contract services (commuter, school, transit). Another 2,300 member organizations represent the travel and tourism industry and suppliers of bus products and services who work in partnership with the North American motorcoach industry.

B. **American Public Transportation Association (APTA), www.apta.com**

American Public Transportation Association is an international organization that has been representing the transit industry for over 100 years, since 1882.

APTA 1,506 member organizations serve the public interest by providing safe, efficient and economical transit services, and by improving those services to meet national energy, environmental, and financial concerns. Over ninety percent of passengers using transit in the U.S. and Canada are carried by APTA members.

APTA members include bus, rapid transit and commuter rail systems, and the organizations responsible for planning, designing, constructing, financing and operating transit systems.
APTA Business Members are the private businesses which supply products and services to the transit industry. In addition, government agencies, metropolitan planning organizations, state departments of transportation, academic institutions, and trade publications are also part of its membership.

**Workforce Development Issues and Initiatives**

Over the past few years APTA has made workforce development a major priority, working through a senior-level Workforce Development Initiative (WDI) sponsored by APTA’s executive committee. WDI is designed to address one of the public transportation industry’s most critical problems: attracting and retaining a skilled, committed, and diverse workforce. In 2001, the WDI Task Force presented *Public Transportation’s “Blueprint” for the 21st Century*, a report identifying key workforce development issues facing the transit industry as well as an Action Plan for addressing these issues. The task force found consensus on a number of challenges. These include: changing workforce demographics and a rapidly aging workforce, critical needs in recruitment, hiring, development and succession planning, institutional barriers to workforce competitiveness and innovation, new roles for technology and the change it has on people’s lives, work practices and use of new resources, need for improved labor-management collaborations and partnerships, and lastly, the need to strengthen the overall image of public transportation – to position this industry as "an employer of choice".

The workforce development task force has been strengthened to include representation from the FTA and two major transit labor unions (Amalgamated Transit Union and the Transport Workers Union).

To address workforce issues, APTA also expanded the Human Resources Committee to include four new subcommittees: labor relations; employment; organizational development; and employee training and development. Inviting more participation in these efforts, APTA added a forum to its web site for members to share information on best practices. Also, sessions on workforce issues were featured at all major APTA conferences throughout the year. A new Program Management and Educational Services department was created to encompass a number of new initiatives including increasing educational services for the industry, managing the workforce development initiative, developing an Internet-based distance learning program for member organizations, and managing the American Public Transportation Foundation. APTA is now actively pursuing opportunities of joint collaborations with major transit labor unions, FTA, National Transit Industry and others to support needs for professional development, learning and training.

**C. Community Transportation Association of America (CTAA), www.ctaa.org**

CTAA is a national, professional membership association of organizations and individuals committed to removing barriers to isolation and to improving mobility for all people.
CTAA has a particular focus on rural transportation. It conducts research, provides technical assistance, offers educational programs and serves as an advocate in order to make coordinated community transportation available, affordable and accessible.

**D. National School Transportation Association (NSTA), www.schooltrans.com**

The National School Transportation Association was founded in 1964 by school bus contractors to promote and foster the highest degree of safety in the transportation of school children. NSTA works with federal and state legislatures, federal agencies, the public sector, and other interested parties to bring about industry-wide improvements in all areas of pupil transportation.

NSTA serves as the trade organization for school bus contractors which are companies that own and operate school buses and contract with school districts to provide the pupil transportation service.

NSTA membership reflects the great diversity in the industry today. Members range from small one or two bus family-operated fleets to larger corporate entities operating over 1,000 school buses in multiple states.

**III. Trucking, Warehousing and Logistics**

The American Trucking Association (ATA) is the largest and most influential industry organization in this subsector; it has very limited involvement with skill issues, however. The Motor Freight Carriers Association (MFCA) and the Professional Truck Drivers Institute (PTDI) are not as large but are involved with training initiatives, often in partnership with the Teamsters.

**A. The American Society of Transportation & Logistics (AST&L), www.astl.org**

AST&L is a professional organization founded in 1946 by a group of industry leaders to insure a high level of professionalism and promote continuing education in the field of transportation and logistics.

AST&L's objects and purposes are to establish, promote, and maintain high standards of knowledge and professional training; formulate a code of ethics for the profession; advance the professional interests of members of the organization; serve as a source of information and guidance for the fields of traffic and transportation, logistics, and physical distribution management; and serve the industry as a whole by fostering professional accomplishments.

AST&L's membership of over 1,000 members, including shippers, carriers, educators, and third-party individuals, is dedicated to continuing education and is committed to raising industry professional standards.
B. **American Trucking Associations (ATA), www.truckline.com**

American Trucking Associations is the national trade association of the trucking industry, representing every type and class of motor carrier in the country. ATA is a federation of affiliated state trucking associations, conferences, and other organizations that together include more than 37,000 motor-carrier members, representing every type and class of motor carrier in the country.

Employing more than 10.1 million people in jobs relating to trucking, the trucking industry generates more than $585.3 billion in annual revenues, exclusively serves over 80 percent of all communities in the U.S. for the products and goods they receive and logs more than 116 billion miles a year.

C. **International Warehouse Logistics Association (IWLA), www.iwla.com**

International Warehouse Logistics Association is the unified voice of the global warehouse logistics industry, representing 3PLs (third-party logistics providers), public and contract warehouse companies and their suppliers.

Since 1891, the Association has been working to promote, advance, protect and serve the outsourced warehousing and logistics industry. The 550 IWLA members worldwide operate nearly 400,000,000 square feet of public and contract warehouse space and provide the most timely and cost-effective global logistics solutions for their customers. Members of the Association receive services including free legal assistance, marketing assistance and group purchasing programs.

D. **Motor Freight Carriers Association (MFCA), www.mfca.org**

The Motor Freight Carriers Association is the national trade association representing unionized less-than-truckload (LTL) motor carriers. MFCA currently has six member companies: ABF Freight System, Inc., Airborne Express, New Penn Motor Express, Inc., Roadway Express, Inc., USF Holland and Yellow Transportation, Inc. These member companies have a combined total of 108,375 employees and employ 80% of the Teamsters covered by the National Master Freight Agreement. The mission of MFCA is to give unionized carriers a greater voice in public policy and economic issues affecting the industry.

E. **Truckload Carriers Association (TCA), www.truckload.org**

The Truckload Carriers Association is the only national trade association whose sole focus is the truckload segment of the motor carrier industry. The association represents dry van, refrigerated, flatbed, intermodal container and end-dump carriers operating in the 48 contiguous states as well as Alaska, Mexico, and Canada. TCA’s membership includes 460 trucking companies that generate revenue of $22 billion, as well as 300 vendor organizations.

The purpose of the Association is to provide leadership that will increase members' productivity, profitability and ability to provide superior service; to advocate on behalf of its...
members and to enhance the truckload industry's ability to provide safe, high quality, reliable truckload transportation services to the shipping public.

IV. Air Transportation

The Air Transport Association is the largest association for passenger airlines and some air freight, while the International Air Cargo Association is the largest for air freight operations. Neither has had a major interest in skills or workforce development issues. Given the economic and labor-market turmoil in the airline industry since 9/11, there has been very limited focus on skill development issues in this sector in the past few years.

A. Air Transport Association (ATA), www.airlines.org

The ATA is the only trade organization for the principal U.S. airlines. In that capacity it has played a major role in all the major government decisions regarding aviation since its founding, including the creation of the Civil Aeronautics Board, the creation of the air traffic control system, and airline deregulation.

The purpose of the ATA is to support and assist its 26 member organizations by promoting the air transport industry and the safety, cost effectiveness, and technological advancement of its operations; advocating common industry positions before state and local governments; conducting designated industry-wide programs; and assuring governmental and public understanding of all aspects of air transport.

ATA’s membership consists of common carriers in air transportation of passengers (such as United and Air Canada) and/or cargo (Such as Fedex and UPS); operate a minimum of 20 million revenue ton-miles (RTMs) annually, and have done so for one year preceding the date of application; and have a valid operating certificate from the Federal Aviation Administration.

B. The International Air Cargo Association (TIACA), www.tiaca.org

The International Air Cargo Association is a worldwide organization that serves a membership which includes all major segments of the air cargo and logistics industry: airlines, forwarders, airports, ground handlers, all-cargo carriers, road carriers, customs brokers, logistics companies, integrators, shippers, educational institutions and students involved in air cargo training.

TIACA’s mission is to advance the interests of the air cargo industry and strengthen its contribution to world trade expansion. It has pledged to support and assist progressive liberalization of the global market and easier, enhanced trade between developing and developed economies.
V. Water Transportation

Associations in the water transportation sector are highly segmented (for example, Port Authorities, Lake Carriers, US-flag vessels, Offshore Marine Services, etc.). The large and important American Association of Port Authorities has an active program in security training, but little in technical skills training. Other associations are involved, either directly or through their member organizations, in an extensive network of workforce training programs conducted jointly with maritime unions (see Part 3, below). The Offshore Marine Services Association provides certification training for qualified offshore marine personnel and officers.

A. American Association of Port Authorities (AAPA), www.aapa-ports.org

The American Association of Port Authorities is a trade association that represents deep draft public port authorities throughout the U.S., Canada, Latin America and the Caribbean. They have an extensive education and training program. They conduct research and compile industry surveys, distribute a variety of newsletters, and offer public relations and information services for port professionals. For U.S. members, they also provide advocacy services.

AAPA's corporate membership includes most of the deep draft public ports throughout the Western Hemisphere. Although not eligible for corporate membership, a number of inland river ports belong as sustaining members. There are also private port authorities and terminals that are not represented in AAPA's membership. AAPA has over 400 members: 152 Corporate members, another 275 Sustaining members, 34 Associate members and 18 Honorary members.

Current Issues Facing the Industry

Ports play a leading role in facilitating trade and prosperity. The expansion of the global economy and other economic pressures are altering the structure of maritime transportation. This change has resulted in several important trends for ports:

1. The amount of trade and cargo moving through ports is increasing;
2. Vessel sizes are increasing and require deeper channels;
3. Ports, as with other industries, need to maintain environmental and economic balance in their operations; and,
4. All of these trends create a greater need for capital investment in port infrastructure.

Workforce Development Issues and Initiatives

Over 95% of non-North American trade enters the country through U.S. seaports, and these seaports handle over $740 billion and 2 billion tons of domestic and international freight
annually. Enhancing maritime security and protecting America’s seaports from acts of terrorism and other Federal crimes is a top priority for AAPA and U.S. port authorities.

The Department of Homeland Security’s Port Security Grant Program provides resources for security planning and projects to improve dockside and perimeter security. In the last round of grant awards, some 442 projects in 326 locations from across the nation received $179 million in funding. DHS also awarded an additional $245 million for port security in FY 2003. However, most of the federal funding was spent on physical enhancements of ports rather than training related to port security improvements.

AAPA encourages the development of appropriate programs for training seaport security officers. Such programs would provide the kind of training specific to handling security on the waterfront. Upon completion, the security officer would receive certification that he/she has been officially trained as a seaport security officer.

At a February 2004 meeting, AAPA established Task Force for Security Training under the port security sub-committee. The task force recognizes that security training needs to be provided not only to port guards and police, but to all classifications of port employees. A significant problem with current security training is the lack of standards for training. Port authorities invest a large amount of money on maritime training school contracts, but the results of training may not satisfy the government requirements.

B. American Waterways Operators (AWO), www.americanwaterways.com

The American Waterways Operators is the national trade association for the U.S. tugboat, towboat and barge industry. For over 50 years, AWO has promoted a greater understanding of the vital, safe and environmentally sound contribution to the U.S. economy of the domestic waterways transportation industry. AWO acts as the principal advocate for the industry in Washington, D.C. with key policymakers and federal officials.

Organized in Washington, D.C. in 1944, AWO is now comprised of 375 member companies that serve the diverse needs of U.S. shippers and consumers. AWO members operate throughout the United States on America’s rivers; canals; in its ports and harbors; on the Great Lakes; and on the Atlantic, Pacific and Gulf coasts.

C. Lake Carriers’ Association (LCA), www.lcaships.com

Lake Carriers’ Association is the trade association representing U.S.-flag vessel operators on the Great Lakes. The Association is made up of 12 American companies that operate 52 U.S.-flag self-propelled vessels ("lakers") and integrated tug/barge units ranging in length from 383 to 1,013.5 feet. Cargo movement by LCA fleets and other U.S.-flag Lakes operators has topped more than 125 million tons in a year, but has been negatively impacted by illegally dumped foreign steel in recent years. Iron ore, stone and coal are the primary commodities carried by LCA members. Other cargos include cement, salt, sand, grain and liquid-bulk products. The vast majority of cargos carried by U.S.-Flag lakers move between U.S. ports, what is commonly referred to as the Jones Act trades.
D. National Association of Marine Services (NAMS), www.namsshipchandler.com

National Association of Marine Services of the United States is the only properly-constituted organization of commercial vessel suppliers in the United States. NAMS has been in existence for 45 years and through its executive office, stands ready to assist ship owners and operators in any way.

NAMS is a national organization of ship suppliers (regular members - currently 55) who service and supply ocean vessels that call on all ports in the U.S. The Association also has associate members - currently 16, manufacturers who distribute their products to ships through ship suppliers, and affiliate members, companies that provide services to the industry.

NAMS’s goal is to further the growth and profitability of all segments of the ship supply industry through the promotion of harmonious relationships between ship suppliers and manufacturers, provide a forum for the open exchange of industry information and inform members on distribution issues and ideas.

E. American Maritime Congress, www.us-flag.org

The American Maritime Congress is an educational and research group representing U.S.-flag vessel operating companies in the international and domestic trades that have collective bargaining agreements with the Marine Engineers' Beneficial Association.

F. Offshore Marine Services Association (OMSA), www.offshoremarine.org

The Offshore Marine Service Association is a national trade organization of offshore marine operators and affiliated companies that recognized the need for consensus within the industry and the need for a united front in pursuing matters of mutual interest. Today, OMSA directly represents the large majority of U.S. offshore marine transportation companies, as their principal spokesman delegated to pro-actively develop and/or to promote positions favorable to the industry in response to proposed legislation or other governmental actions, worldwide, which potentially could impact offshore operators and service companies.

Current Issues Facing the Industry

- Shortage of qualified marine personnel and licensed officers.
- Application and management of federal drug regulations requiring companies to test employees.
- Development of acceptable new hire, firefighting and advanced training programs.

Workforce Development Issues and Initiatives

- Reduction of Sea Service Requirements: OMSA worked with the Coast Guard to obtain reasonable sea service requirements for masters, mates and engineers on Offshore Supply Vessels and other offshore support vessels, and developed reasonable
examinations reflective of the way special purpose offshore vessels are operated. Further, to assist the mariner the Coast Guard agreed to publish all examination questions on its web site.

- Innovative Licensing Programs: OMSA works constantly with the Coast Guard to develop methods of reducing shortages of licensed personnel. The Coast Guard agreed to allow specially trained 1000 Horsepower Designated Duty Engineers to serve on vessels of up to 4000 Horsepower domestically, under certain conditions. OMSA has supported the Coast Guard efforts to ease the burden on entry level mariners with its temporary merchant mariner identification program (Temp MMD) that reduces the wait time for entry level personnel to receive required documents, and that accelerates the advancement of entry level personnel.

- Towboat Operator Exemption: OMSA obtained a statutory exemption for vessels of our industry engaged in tows to or from offshore oil sites from the licensing requirement for Operators of Uninspected Towing Vessels. This was to allow those existing operators with limited test taking abilities to continue working in the industry for which they had trained.

G Pacific Maritime Association (PMA), www.pmanet.org

The principal business of the Pacific Maritime Association is to negotiate and administer the longshore, marine clerks, and walking bosses labor agreements with the International Longshore and Warehouse Union (ILWU) on behalf of its member companies.

PMA’s 72 member companies transport and handle containers, autos, trucks, lumber, logs, bulk cargoes, and just about every other type of ocean-going cargo except crude oil, bulk petroleum products, and bulk liquid chemical cargoes. The membership of the PMA consists of American flag operators, foreign flag operators, and stevedore and terminal companies that operate in California, Oregon, and Washington ports.

Current Issues Facing the Industry

West Coast ports support millions of jobs in the U.S. and around the world. They generate a business revenue impact equivalent to 7% of the nation's gross domestic product. West Coast ports are running out of land on which to expand, but container volume is expected to more than double over the next two decades. This means that existing terminals must become more efficient by increasing throughput per acre. The new ILWU-PMA labor agreement features the introduction of technologies for cargo identification, tracking, and handling as well as other improvements in cargo and information flow. These technologies, coupled with work-process improvement, will ensure shippers that West Coast ports will be able to accommodate continued growth in trade and that their goods will move more efficiently.

Workforce Development Issues and Initiatives

In the coming months, PMA will focus on the implementation of the new labor agreement, ensuring that all the parties fully meet their respective obligations under the contracts. Longshore job training programs will be enhanced. The development of a highly skilled,
motivated, and safety conscious work force is a top priority for PMA. The Industry's human resources are its most important component. Through skills training and safety awareness training, PMA's goal is to provide the tools necessary for the work force to work smarter while increasing productivity.

H. **The Transportation Institute, www.trans-inst.org**

The Transportation Institute was established in 1967 as a Washington-based, non-profit organization dedicated to maritime research education and promotion. The Institute companies participate in all phases of the nation's deep sea foreign and domestic shipping trades, and barge and tugboat operations on the Great Lakes and on the 25,000 mile network of America's inland waterways. These operations embrace deep-sea and river passenger vessels, and liquid, dry-bulk, container and special purpose ships. Many are contracted to the U.S. military services. All are of U.S. registry -- crewed by American citizens operating under the world's highest safety standards, and proudly flying the American flag. With offices on the east and west coasts, the Transportation Institute supports a wide range of programs that promote the strength of America's capability.

VI. **Rail Transportation**

The Association of American Railroads is the major player in the rail sector. Rail industry initiatives on workforce development are developed by individual employers or by joint labor-management training programs.

A. **American Short Line and Regional Railroad Association (ASLRRA), www.aslrra.org**

The American Short Line and Regional Railroad Association is a non-profit trade association that represents the interests of its more than 400 short line and regional railroad members in legislative and regulatory matters. Short line and regional railroads are an important and growing component of the railroad industry. Today, they operate and maintain 29 percent of the American railroad industry's route mileage, and account for 9 percent of the rail industry's freight revenue and 11 percent of railroad employment.

Members of ASLRRA include Class II¹ (Regional railroad) and Class III² (Short line railroad) companies throughout the continental U.S. and its possessions.

ASLRRA provides a variety of services, including representing the industry before the federal government and representing members in their relationships with major railroads. ASLRRA's model programs can help meet the requirements of federally mandated programs like random alcohol and drug testing, engineer certification and environmental regulations.

¹ **Class II:** Carriers with annual carrier operating revenues of less than $250 million but in excess of $20 million.
² **Class III:** Carriers with annual carrier operating revenues of $20 million or less, and all switching and terminal companies regardless of operating revenues.
The Association of American Railroads — one of the nation's oldest and most respected trade associations — represents the major freight railroads of the United States, Canada and Mexico. Amtrak and some regional commuter railroads are also members of the AAR. In addition, the AAR has associate members including smaller freight railroads, railway suppliers and other companies with an interest in railroads. Based in Washington, DC, the AAR is committed to keeping the railroads of North America safe, fast, efficient, clean, and technologically advanced.

AAR has a total of 56 members, including 14 full members, 5 special members, 10 non-class I railroad associate members and 27 associate members.

Much of the AAR focus is on Washington, bringing critical rail-related issues to the attention of Congressional and government leaders. By working closely with lawmakers and regulators, they help ensure that North American freight railroads remain the best in the world.

The AAR is also very much involved in programs to improve the efficiency, safety and service of the railroad industry. Two AAR subsidiaries — the Transportation Technology Center, Inc., and Railinc — ensure that railroads remain on the cutting edge of transportation and information technology.

**Workforce Development Issues and Initiatives**

Over the past several decades, freight and passenger railroad industries have developed different employment patterns. Amtrak and commuter rail employment has been relatively stable, whereas freight rail employment has shrunk, particularly after the Railroad Revitalization and Regulatory Reform Act of 1976 and the Staggers Act in 1980 that gave railroads the freedom to set rates. Due to deregulation, the railroads have undergone labor productivity growth that far outpaces the American economy as a whole.

Entering the new millennium, the freight railroad industry is speeding up the adoption of technological advances in communications, command, and control; more fuel-efficient locomotives; and high-capacity, lightweight freight cars. At the same time, a surge in retirements under the amended Railroad Retirement Act, as well as a sharp increase in business for the top railroads over the past five years, has created the industry’s largest hiring surge in more than two decades. AAR expects the nation’s seven top freight haulers to bring an estimated 80,000 new workers aboard over the next six years. Among them, locomotive engineers and conductors are in the greatest need, with salaries starting above $40,000 and the peak pay for engineers as high as $110,000. The demand for licensed engineers has specific implications for on-the-job training since engineers only receive their training from working their way up from the positions of conductors or trainpersons.

AAR does not play a large role in employment and training issues. However, member organizations offer wide-ranging training programs that cover both rail operation and
maintenance, including joint labor-management apprenticeship, mentoring, and degree programs through colleges to fill entry-level positions.
Part 2. Key Transportation Industry Unions

Many important transportation unions are strongly identified with a single transportation sector or craft, as often implied in their names (for instance, Amalgamated Transit Union, the various maritime unions, the Air Line Pilots Association). Others have members in several different sectors (for instance Teamsters, Transport Workers). Many transportation unions have an interest in skill issues; that interest is typically developed through collectively-bargained training programs or through broader sectoral or cross-sector nonprofit organizations devoted to skill development, as indicated in greater detail in Part 3.

I. Cross-Sector

A. Communication Workers of America (CWA), www.cwa-union.org

CWA, America's largest communications and media union, represents over 700,000 men and women in both private and public sectors, including over half a million workers who are building the Information Highway.

CWA members are employed in telecommunications, broadcasting, cable TV, journalism, publishing, electronics and general manufacturing, as well as airline customer service, government service, health care, education and other fields.

B. International Brotherhood of Electrical Workers (IBEW), www.ibew.org

The International Brotherhood of Electrical Workers (IBEW) represents more than 780,000 members who work in a wide variety of fields, including utilities, construction, telecommunications, broadcasting, manufacturing, railroads and government. The IBEW has members in both the United States and Canada and stands out among the American unions in the AFL-CIO because it is among the largest and has members in so many skilled occupations.

C. International Association of Machinists and Aerospace Workers (IAM), www.goiam.org

The International Association of Machinists and Aerospace Workers (IAM) is a large and diverse organization, representing 730,000 members across North America.

The IAM Transportation Department provides the expertise and special services required by workers mainly in the airline and railroad industries. The IAM is the certified bargaining agent for approximately 150 agreements covering national air carriers, national service companies, foreign flag carriers, commuters and airline servicing companies in the United States. The IAM has collective bargaining agreements with 57 rail carriers. Membership of the Transportation Department consists of nearly 140,000 airline, railroad employees, and transit mechanics.

D. Service Employees International Union (SEIU), www.seiu.org
The Service Employees International Union is 1.6 million working people and 120,000 retirees united to improve their jobs and their communities. The Union represents nurses, doctors, health technicians, workers in local government, state employees, security officers, janitors, and building service workers. It also organizes nursing home workers, home care workers, public school workers, bus drivers, stadium workers, and people in many other jobs. One of the oldest rail unions, the Brotherhood of Firemen and Oilers, is now a conference within SEIU.

E. **American Federation of State, County and Municipal Employees (AFSCME), www.afscme.org**

AFSCME has over 1.4 million members, mostly public service and health care workers. Transportation related occupations account for 9% of AFSCME’s total membership. AFSCME today has about 3,500 local unions and affiliates in 47 states, the District of Columbia and Puerto Rico.

F. **International Brotherhood of Teamsters (IBT), www.teamsters.org**

The International Brotherhood of Teamsters, with 1.4 million members, is one of the largest labor unions in the world. It is also the most diverse union in the U.S. There are 521 Teamsters local unions across North America. The Teamsters represents workers in the airline industry, trucking and warehousing, and the public transit industry.

G. **Amalgamated Transit Union (ATU), www.atu.org**

ATU is the largest labor organization representing transit workers in the U.S. and Canada. Founded in 1892, the ATU, today, is comprised of over 180,000 members in over 273 local unions in 46 states and nine provinces. The ATU includes bus, subway, light rail and ferry operators, clerks, baggage handlers, mechanics and others in the urban transit, over-the-road, and school bus industries, as well as paratransit, emergency medical, clerical, and municipal workers. ATU represents the largest number of transit industry employees.

H. **Transport Workers Union of America (TWU), www.twu.org**

TWU is a trade union representing over 135,000 workers in mass transportation, airline, railroad, utility, university, municipalities, service and allied industries. TWU has the second largest number of transit employees and is one of the largest airline industry unions.

I. **Transportation Communications International Union (TCU), www.tcul.org**

TCU has approximately 100,000 members in the United States. Its members are employed primarily in transportation and communications-related fields; they work as clerks, carmen, computer programmers, skycaps, and redcaps, on-board service workers, secretaries, supervisors, truck drivers, accountants, yardmasters, police officers, grain handlers, reservation agents, and transit workers.
J. United Transportation Union (UTU), www.utu.org

UTU is a broad-based, transportation labor union representing about 125,000 active and retired railroad, bus and mass transit workers in the United States and Canada.

The UTU is the largest railroad operating union. It represented mainly railroad conductors when first established. It includes more than 600 locals in North America, representing railroad, bus and mass transit, and airline employees and employees on every Class 1 railroad, many regional and shortline railroads, and approximately 45 bus and transit systems. Recently, its membership has grown to include airline pilots, dispatchers and other airport personnel.

II. Air Transportation

A. Air Line Pilots Association (ALPA), www.alpa.org

ALPA is a union representing 66,000 airline pilots at 42 U.S. and Canadian airlines. Founded in 1931, it is chartered by the AFL-CIO.

B. National Air Traffic Controllers Association (NATCA), www.natca.org

NATCA represents over 15,000 air traffic controllers, engineers, and other safety related professionals. It is a federal sector labor union, a direct affiliate of the AFL-CIO. NATCA’s membership is found in every state, territory and possession in the United States.

C. Professional Airways Systems Specialists (PASS), www.passnational.org

PASS is the union that represents more than 11,000 employees of the Federal Aviation Administration (FAA) and Department of Defense (DoD).

The PASS members include FAA and DoD Systems Specialists, Aviation Safety Inspectors and safety support staff, along with Flight Inspection Pilots, Procedures Development Specialists, Airborne Technicians, and aircraft maintenance and staff support from the FAA’s Office of Aviation System Standards and Manufacturing Inspectors and safety support staff from Manufacturing Inspection District Offices.

D. Association of Flight Attendants (AFA), www.afanet.org

AFA is the world's largest labor union organized by flight attendants for flight attendants. AFA represents over 50,000 flight attendants at 26 airlines, serving as a voice for flight attendants at their workplace, in the industry, in the media and on Capitol Hill. Simply put, the goal of flight attendants who become part of AFA is to negotiate better pay, benefits, working conditions and work rules at their airline, and to improve their safety on the job.

III. Longshore and Warehousing
A. **International Longshore and Warehouse Union (ILWU), www.ilwu.org**

ILWU has approximately 42,000 members in over 60 local unions in the states of California, Washington, Oregon, Alaska and Hawaii. An additional 3,500 members belong to the Inlandboatmen's Union of the Pacific, which constitutes the Union's Marine Division. Another 14,000 members belong to the autonomous ILWU Canada.

B. **International Longshoremen's Association (ILA), http://ilaunion.org**

ILA is the exclusive bargaining representative of longshoremen, clerks, checkers and maintenance persons who are employed on ships and terminals in all ports on the East and Gulf Coasts of the United States, inclusive from Maine to Texas.

IV. **Water Transportation**

A. **Marine Engineers Beneficial Association (MEBA), www.d1meba.org**

MEBA is the nation's oldest maritime labor union, established in 1875 representing licensed engine and deck officers aboard seagoing vessels, ferries and government-contracted ships. Members also serve on tugs and barges, fireboats, research vessels and in various capacities in the shore side industries. The MEBA affiliates include law enforcement officers, aviation specialists and many members in public and private employees.

B. **Inlandboatmen's Union of the Pacific (IBU), www.ibu.org**

The Inlandboatmen's Union of the Pacific is one of the largest maritime Unions on the west coast. The IBU has grown into a union which represents about 4,000 workers on both passenger carrying and commercial vessels that sail along the Pacific coastline and to Hawaii. Workers represented by the IBU include deckhands on tugboats, barges oil and dredge barges, and ferryboats; snack bar and concessionaire workers, and ticket-takers and terminal personnel on ferry systems; longshoremen and seafood processing workers in Alaska, warehousemen, and tankermen. The IBU is affiliated with and backed by the International Longshore and Warehouse Union.

C. **International Organization of Masters, Mates & Pilots (MM&P), www.bridgedeck.org**

MM&P is the International Marine Division of the International Longshoremen's Association, AFL-CIO. With 6,800 members living throughout inland and coastal states of the U.S., and in countries around the world, the MM&P represents Licensed Deck Officers, state pilots and other marine personnel on U.S.-flag commercial vessels sailing in international trade; the inland waterways and Great Lakes of the United States; the Panama Canal and Caribbean, as well as crews sailing civilian-crewed military vessels of the United States.

D. **Sailor's Union of the Pacific (SUP), www.sailors.org**
The SUP is a union of unlicensed sailors that work in the deck, engine, and steward's departments in U.S.-flag vessels under contract to the Union. The SUP also has collective bargaining agreements with U.S.-flag companies where licensed personnel are also represented. The SUP is an AFL-CIO union as an autonomous affiliate of the Seafarers' International Union of North America.

E. **Seafarers International Union (SIU), www.seafarers.org**

The Seafarers International Union, Atlantic, Gulf, Lakes and Inland Waters District/National Maritime Union (NMU), AFL-CIO, represents unlicensed United States merchant mariners sailing aboard U.S.-flag vessels in the deep sea, Great Lakes and inland trades. The union also represents licensed U.S. mariners in the Great Lakes and inland sectors.

SIU members sail in the three shipboard departments: deck, engine and steward. They work aboard a wide variety of vessels, including commercial container ships and tankers, military support ships, tugboats and barges, passenger ships, gaming vessels and many more.

Affiliates of SIU include American Maritime Officers, Marine Firemen's Union, Sailors' Union of the Pacific, and Seafarers Maritime Union.

V. **Rail Transportation**

A. **International Brotherhood of Boilermakers, Blacksmiths, Forgers and Helpers (IBB), www.boilermakers.org**

The International Brotherhood of Boilermakers is a diverse union representing over 100,000 workers throughout the United States and Canada in construction, repair, maintenance, manufacturing, professional emergency medical services, and related industries.

The US Railroad Division of the International Brotherhood of Boilermakers was formed to give status to and service solely members employed in the Railroad Industry in the United States. The division has approximately 1,200 members employed in the craft and class of Boilermakers as well as the craft and class of Blacksmiths. These members work on every major class I Carrier.

B. **Brotherhood of Locomotive Engineers and Trainmen (BLE), www.ble.org**

The Brotherhood of Locomotive Engineers and Trainmen (BLE) is a Division of the Rail Conference of the International Brotherhood of Teamsters (IBT). The BLE represents Locomotive Engineers, Conductors, Brakemen, Firemen, Switchmen, Hostlers and other Train Service Employees on numerous railroads in the United States. The BLE's total membership is more than 59,000 and growing, in spite of industry consolidation. Since Jan. 1, 1992, Locomotive Engineers must be trained and tested to be federally certified and licensed to operate trains.

C. **Brotherhood of Maintenance of Way Employees (BMWE), www.bmwe.org**
BMWE is an international union representing and protecting the rights of rail workers who build and maintain the track and structures on railroads throughout the United States and Canada. It represents 58,000 railway workers throughout North America. In addition, workers from other industries have recently elected to join. These include skilled mechanics as well as workers from the food service and janitorial industries.

D. *Brotherhood of Railroad Signalmen (BRS), www.brs.org*

BRS is a national organization representing the men and women who install and maintain signal systems for most of the nation's railroads.

The BRS represents nearly 9,500 members working for railroads across the United States and into Canada. Signalmen install, repair and maintain the signal systems which railroads utilize to direct train movements. Automatic signals and switches installed and maintained by Signalmen allow railroads to move large numbers of freight and passenger trains at higher speeds and with greater safety. Signalmen also install and maintain the warning systems used at railroad-highway crossings, which play a vital role in ensuring the safety of highway travelers.
Part 3. Joint Workforce Development Initiative – Preliminary Information

Overall, joint workforce development programs in the transportation industry are expanding, with several new initiatives in recent years.

A fair number of joint labor-management training initiatives are in their planning and development stages in the transit industry. These programs have successfully upgraded the skills of current workers in the participating transit properties and to some extent mitigated the skills shortage caused by aging of the transit workforce and implementation of new technologies.

In trucking, joint efforts have been made since 1999 to create school-to-work learning opportunities for America’s youth to enter the industry. Possibilities of over-the-road truck driver training and broad safety training programs are also being explored by a joint labor-management effort.

The maritime transportation industry has several long established centers for industry-labor cooperative training programs that bring marine engineers and mariners into compliance with complex certification requirements, and provide skills upgrade training and career ladder opportunities to seafarers and inland waterways boatmen. In order to address the needs of the mariners in the Gulf of Mexico, five maritime unions created Offshore Mariners United (OMU) to provide training based on the Standards for Training, Certification and Watchkeeping for Seafarers (STCW). With increasing security concerns after September 11th, maritime and port security training standards are largely lacking, making government compliance difficult for employers.

In 1990, seven rail union affiliates initiated a cooperative effort to provide hazardous materials training to the conductors, engineers, signalmen, laborers and other rail workers they represent. Rail apprenticeship programs also exist between local unions and individual employers for conductor and mechanic positions.

I. Transit and Ground Passenger Transportation

A. Selected Joint Transit Training/Apprenticeship Programs

Approximately 15 U.S. transit systems have some degree of joint labor-management training programs. These include major metropolitan-area transit systems such as Houston Transit, Metro Atlanta Transit, Miami-Dade Transit, New York City Transit, Portland Tri-Met, San Francisco Muni, Seattle King County Metro, Utah Transit, Washington Metropolitan Transit, and Pennsylvania and Ohio on a statewide basis. Most of these training programs have been established through collective bargaining agreements. Successful completion of a two to three year apprenticeship program enables an entry-level employee to become a skilled mechanic in bus, rail, and facilities maintenance.

B. Transportation Learning Center (The Center)

www.transportcenter.org
Founded in 2001 and with active support from US DOT, major transit companies, APTA and the industry’s two major unions ATU and TWU, the Transportation Center has developed a Transit Technology Career Ladder Partnership (TTCLP) program that has brought together transit systems and their unions at the local and statewide level to develop data-driven workforce development partnership programs.

Through the TTCLP program, the Transportation Center and the local and statewide transit training partnerships it sponsors have won support from statewide and local Workforce Investment Boards and agencies to identify areas of transit skill shortage, empirically analyze skills required for key industry jobs, assess current skills, and develop new curriculum, training delivery and mentoring systems in more than a dozen individual transit systems in five states - Pennsylvania, California, New York, Florida and Texas. Over the past 30 months local and statewide transit training partnerships sponsored by the TTCLP program have created systems to deliver new training to more than 3,500 transit operating and maintenance employees. The program has had great success in Pennsylvania and the Pennsylvania Department of Labor is promoting the Keystone Transit Career Ladder Partnership program throughout the state as a model for workforce development in other industries and firms.

In addition, the Transportation Center is actively involved in the initiation of new transit training partnerships in new states such as Ohio and Utah. In early 2004 the Center submitted its proposal Building Capacity for Transit Workforce Development to the Department of Labor. The project will draw broad participation from transit industry associations, labor unions, employers, and existing transit career ladder partnerships to create consensus models for training and apprenticeship, including standards for skill acquisition supported by skill-based course curricula and mentoring systems.

II. Trucking and Warehousing

A. Joint Truck Driver and Safety Training

A joint labor-management committee was formed over a year ago with participation from trucking industry associations, employers, and the Teamsters union - the National Transportation and Logistics Committee. One of the first tasks of the committee is to study statistics of the entire transportation industry as it relates to global trade and to collect information on detailed industry sectors such as trucking, ports, rail and logistical systems. A report is being produced for the spring of 2004 on skills needs in the trucking and logistics industry. The committee also plans to bring together and expand about 20 training programs nationwide. Currently existing local programs include construction related driver training in Alaska, Chicago, Northern California, Southern California, Minnesota and Rhode Island, and safety training in Indianapolis.

B. Professional Truck Driver Institute (PTDI), www.ptdi.org

Since its inception in 1986, the Professional Truck Driver Institute, Inc. has become the nation's foremost advocate of optimum standards and professionalism for entry-level truck driver training. PTDI developed the first industry-recognized voluntary certification standards
for school entry-level truck driver training courses, carrier driver finishing programs and younger driver programs. The standards include skill, curriculum and course/program standards.

B. Skills for Tomorrow Project, www.ibtstw.org

The Skills for Tomorrow Project is a collaboration of the International Brotherhood of Teamsters (IBT), employers, educators and other workforce development partners to recognize, celebrate, promote and assist Local Unions and Joint Councils in their efforts in creating school-to-work learning opportunities for America’s youth.

In October 1999 the International Brotherhood of Teamsters received a grant from the U.S. Departments of Labor and Education to implement the Skills for Tomorrow Project. The project is being jointly designed and developed by the International Brotherhood of Teamsters and the Minnesota Teamster Service Bureau located in Minneapolis, MN.

The specific purpose of the Project is to identify and share information on replicable school-to-work Effective Practices and Promising Models that Local Unions and Joint Councils have developed and implemented across the country.

These practices and models range from co-founding a school-to-work charter school to providing internships for teachers and young people and a wide array of life skills and career awareness activities.

The Skills for Tomorrow Project provides an opportunity for the IBT and its members to identify, document, and recognize the growing array of Teamster supported school-to-work learning activities and promote their replication by Local Unions and Joint Councils across North America.

III. Water Transportation

A. The Calhoon MEBA Engineering School, www.mebaschool.org

Established in 1966 to provide contracted companies of District 1 – MEBA (Marine Engineers Beneficial Association) with qualified marine engineers, the Calhoon MEBA Engineering School is the U.S.'s first joint maritime industry-labor training institution. The school is largely responsible for allowing MEBA members to stay at the top of their game. The School’s focus remains on its core business of maritime education, service to the MEBA members, and advancement of excellence to the MEBA contracted companies for almost 40 years.

The School brings members into compliance with complex certification requirements such as STCW-95, OPA-90, and Tankerman/PIC. Instructors have been instrumental in schooling mariners on important CBR-D training that teaches students defense methods in regard to weapons of mass destruction, small arms training and MSC accepted Government Vessel Operations. This module was required for mariners sailing overseas in support of Operation
Iraqi Freedom. Furthermore, the School is already equipped to handle any training that would be required as a result of the recently enacted Maritime Transportation Security Act.

Today, CMES provides over 25 courses to the USCG licensed deck and engineering officers of the MEBA.

B. **Maritime Institute of Technology and Graduate Studies (MITAGS), [www.mitags.org](http://www.mitags.org)**

The Maritime Institute of Technology and Graduate Studies is a non-profit continuing education center for professional mariners. The Institute provides training to civilian and military mariners from around the globe. The school is also home to the International Longshoremen’s Association / Carrier's Container Council (ILA/CCC) Crane Training Center. Where applicable, the training programs meet the tough quality standards set by the United States Coast Guard, the STCW-95 Code, the American Pilots’ Association, and Det Norske Veritas (DNV).

For over thirty years, MITAGS has been leading the way in assisting mariners and organizations adapting to the rapidly changing maritime environment. Whether it is new technology or world events, MITAGS can enhance mariners’ ability to analyze complex choices and make the “right decision at the right time.”

C. **Pacific Coast Maritime Consortium (PCMC), [www.pacmarcon.org](http://www.pacmarcon.org)**

To address the challenges of new federal certification requirements, a lack of entry-level training positions and an aging workforce, the leadership of five Pacific maritime unions and five Pacific maritime employers has formed a Labor/Management partnership that is funded through a Federal Mediation & Conciliation Service grant. The Pacific Coast Maritime Consortium seeks to implement innovative solutions to the converging problems of an aging mariner demographic, a lack of entry-level positions and the new International and Federal training requirements. The Consortium works with educators, State and Local Labor bodies, government workforce development agencies and U.S. Coast Guard certifying authorities to address skills shortages through recruitment and training programs in a multi-state area that includes Alaska, Washington, Oregon, California and Hawaii.

D. **Paul Hall Center for Maritime Training and Education, [http://www.seafarers.org/phc/schoolHistory.xml](http://www.seafarers.org/phc/schoolHistory.xml)**

The Paul Hall Center for Maritime Training and Education, which opened in 1967, is the largest training facility for deep sea merchant seafarers and inland waterways boatmen in the United States. The center is the product of a unique cooperative effort by the Seafarers International Union and the management of privately owned American-flag deep sea ships and inland tugs and towboats. It is entirely funded with private monies.

More than 50,000 rated and licensed seamen have completed upgrading classes at the training center. Additionally, 21,000 young men and women from every state in the U.S., Puerto Rico
and several U.S. territories have graduated from the trainee program for those just beginning their maritime careers.

The school has developed a total program for professional advancement as a boatman or deep sea mariner. This program focuses on three key areas:

1. Providing young men and women who have no maritime experience with the basic skills they will need to serve aboard U.S.-flag ships or tugs and towboats;

2. Providing professional advancement for experienced men and women through career upgrading programs; and

3. Providing the academic education which is an essential complement to the modern technical skills needed in today's water transport industries.

IV. Rail Transportation


The Rail Workers Hazardous Materials Training Program was originally funded in 1990 by the National Institute of Environmental Health Sciences (NIEHS) to provide hazardous materials training for rail workers. Since that time, more than 17,000 rail workers have participated in NIEHS-funded training courses that address requirements of OSHA 1910.120 and DOT’s Hazardous Materials Regulations.

Generally, rail workers do not have the same access to quality hazmat and/or basic safety and health training as workers in many other industries. Both FRA and OSHA share jurisdiction in regulating worker safety and health conditions on railroad property. This joint jurisdiction has generally not been integrated into employer-provided training for rail workers, leaving the majority largely untrained or undertrained to safely perform hazmat-related functions consistent with the requirements set forth by OSHA and DOT. This target population of approximately 150,000 conductors, engineers, brakemen, switchmen, carmen, signalmen, laborers, boilermakers, and maintenance of way workers is represented by the seven rail union affiliates of this cooperative effort:

- Brotherhood of Locomotive Engineers (BLE)
- Brotherhood of Maintenance of Way Employees (BMWE)
- Brotherhood of Railroad Signalmen (BRS)
- International Brotherhood of Boilermakers (IBB)
- National Conference of Firemen and Oilers, SEIU (NCFO)
- Transportation-Communication Workers Intl Union-Brotherhood of Railway Carmen (TCU-BRC)
- Transport Workers Union (TWU)
The goal of this federally funded training initiative is to provide rail workers with the skills and knowledge necessary to protect themselves, the community, and the environment in a hazardous materials transportation emergency. To achieve this goal, the Rail Workers Hazardous Materials Training Program provides rail workers, through quality hazardous materials training courses, the confidence in their knowledge and problem-solving skills to enable them to make change for safer work conditions.

V. Cross-Sector and Non-Transportation (Construction, Communications)

A. National Joint Apprenticeship and Training Committee (NJATC), www.njatc.org

The NJATC was created over 58 years ago and has developed into what perhaps is the largest apprenticeship and training program of its kind. Local programs affiliated with the NJATC have trained over 300,000 apprentices to journeyman status without cost to the taxpayers. This joint program between the National Electrical Contractors Association (NECA) and the International Brotherhood of Electrical Workers (IBEW) has clearly demonstrated the most cost effective way to train qualified craft workers.

Skill, Knowledge and Attitude are the main focus in all of the NJATC's training programs. The mission of the National Joint Apprenticehip and Training Committee is to develop and standardize training to educate the members of the International Brotherhood of Electrical Workers and the National Electrical Contractors Association; insuring and providing the Electrical Construction Industry with the most highly trained and highly skilled workforce possible.

B. Boilermaker National Joint Apprenticeship Program, www.bnap.com

The program was established to promote efficient and high quality field construction by skilled craftsmen in the boilermaker trade. The program provides an opportunity for a person to work through self-studies, on-the-job training, and participate in classroom instruction at the National Training Center located in Kansas City, KS or Local Training Centers throughout the United States.

C. Selected Joint Communication Workers of America (CWA)-Employer Education and Training Programs

PATHWAYS, www.pathways-tpi.org

PATHWAYS is the education and training benefit program for eligible U S WEST employees. It has been collectively bargained by U S WEST and the Communications Workers of America. A voluntary program, PATHWAYS enables employees to take courses, workshops and seminars in subject areas of their choice on their own time.

National Advisory Coalition for Telecommunications Education and Learning (NACTEL), www.nactel.org
Recognizing their common goals, representatives from Bell Atlantic, The Communications Workers of America (CWA), GTE, The International Brotherhood of Electrical workers (IBEW), SBC and U S West formed NACTEL, an industry coalition dedicated to telecommunications education and learning. The program offers an asynchronous Associate's Degree in Telecommunications.

D. IAM-Boeing Joint Apprenticeship Program

The International Association of Machinists (IAM) and the Boeing Company signed an agreement in 2002 to establish an apprenticeship program. The program is through the IAM/Boeing QTTP (Quality Through Training Program), a joint partnership program. The Program is registered with the Department of Labor, Bureau of Apprenticeship and Training.

E. UA Joint Training Programs, http://ua.org

The UA Joint Labor-Management Training Program has been training the most highly qualified construction industry workers in the United States and Canada for more than a century. In addition to five-year apprenticeship programs, the United Association offers continuing education opportunities that include journeyman training and certifications, as well as an associate degree program through a partnership with Washtenaw Community College.

The UA Apprenticeship Program teaches through both classroom and on-the-job training in what is considered by many to be the best construction industry apprentice program in the world. It's a five-year program that motivates apprentices to learn a challenging and rewarding trade while upholding the ideals of trade unionism.

The UA Journeyman Program is for craftsmen ready to make a serious commitment to a lifetime of learning and advancing their skills through continuous learning programs offered by the United Association.

UA Certification Programs include valve repair, medical gas installation, welding, CFC removal, and instrumentation. UA craftsmen who go through the certification program find they are in demand as some of the best skilled workers in the industry.

Associate in Applied Science Degree Programs are offered through UA's partnership with Washtenaw Community College. The program combines field experience, distance learning, CD ROM technology, the Internet, classroom instructors, and work experience to give indentured apprentices and journeymen of the United Associate an opportunity to apply their work in a trade specialty toward an Associate degree in Industrial Training or Construction Supervision.